Political Elites and Development

by

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Abstract

This dissertation consists of three essays on the behavior of political elites and their effect on economic development. The first two chapters focus on political dynasties in the Philippines while the third chapter analyzes the long-run economic effects of the concentration of political power in the state of Cundinamarca, Colombia.

In Chapter 1, I use a regression discontinuity design based on close elections to estimate the causal effect of entering the political system on dynastic persistence. I find that candidates who barely win their first election are four times (22 percentage points) more likely to have a future relative in office than those who barely lose and never serve. The magnitude of the effect is remarkable and substantially larger than the effect on the *intensive margin* reported by Dal Bo, Dal Bo and Snyder (2009) for the United States. These results suggest that the prevalence of dynastic politicians does not simply reflect the existence of a fixed set of historically powerful families, but rather that the political system itself creates persistence.

In Chapter 2, I study whether the introduction of term limits in 1987 by the Philippine Constitution was effective at breaking the dynastic pattern in Philippine politics documented in chapter 1. In particular, I explore the potential countervailing effects created by dynasties in response to the introduction of term limits: (1) replacement of term-limited incumbents by relatives and (2) running for a different office. I find that term limits are not effective in reducing the probability that the same *family* remains in power both in the short and long-run. Moreover, term limits made incumbents *safer* in their early terms before term limits bind, by deterring high-quality challengers who prefer to wait for the incumbent to be termed-out and run in an open-seat race. These results suggest that political reforms that do not modify the underlying sources of power of dynasties will be ineffective in changing the political equilibirum.

In Chapter 3, which was co-authored with Daron Acemoglu, Maria Angelica Bautista and James Robinson, we explore the relative importance of political and economic inequality in explaining long-run development outcomes in the state of Cundinamarca, Colombia. Using micro data on land ownership we find that municipalities that were more unequal in the 19th century (as measured by the land gini) are more developed today. However, we argue that political rather than economic inequality might be more important in understanding long-run development paths and we document that municipalities with greater political inequality, as measured by political concentration, are less developed today. We also show that during this critical period the politically powerful were able to amass greater wealth, which is consistent with one of the channels through which political inequality might affect economic allocations.

Overall our findings shed doubt on the conventional wisdom and suggest that research on long-run comparative development should investigate the implications of political inequality as well as those of economic inequality.

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[1] **Joint with Daron Acemoglu, Maria Angelica Bautista and James A. Robinson**

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Chapter 1

Family and Politics: Dynastic Persistence in the Philippines

1.1 Introduction

The distribution and evolution across time of political power plays a central role in political economy. Most of the economic and political institutions emphasized in the literature as crucial determinants of economic development are the outcome of collective action amongst various groups with conflicting preferences and interests. Hence, equilibrium policies and institutions in a society reflect the preferences of groups with greater political power (Acemoglu, Johnson and Robinson, 2005). However, the allocation and sources of political power differ greatly across societies. In most modern states, political power is allocated by political institutions. In dictatorial or autocratic regimes, political power is concentrated in a small group of individuals whose preferences have a disproportionate weight in the decision-making process. In contrast, power within democratic regimes is distributed more fairly. In principle, decisions in democracies should represent the preferences of the majority. However, even in democratic societies, politicians do not exercise exclusive influence over policies and institutions. Other actors such as lobbies, unions, and irregular armies have disproportionate power over the rest of the population due to wealth, cohesion or military strength.

An important source of power in many societies is the *family*. Families, when compared to other groups, are better able to cooperate and solve the collective action problem. Their

hierarchical structure and high levels of trust allow for coordinated decisions concerning issues of succession and the intergenerational transmission of economic resources across time. Most importantly, not only can families exercise their power outside formal institutions of government, but they can also take over these institutions and capture the political system. This is illustrated by the existence of political dynasties in many contemporary democracies such as Argentina, India, Japan, Mexico, the Philippines and the United States[1]. The term "political dynasty" refers to families whose members have exercised formal political power for more than one generation. Notable examples include the Kennedy and Bush families in the United States, the Gandhi family in India, the Aquino and Ortega families in the Philippines and the Lopez and Lleras families in Colombia.

The study of political dynasties is important for various reasons. The dynastic nature of politics broadly relates to the classical literature by elite theorists which emphasizes the disproportionate power of elite groups in society (Mosca, 1939 and Pareto, 1968 [1901]) undermining the extent to which democracies achieve a fair distribution of political power. Similarly, Michels (1911) notes the tendency of elites to perpetuate themselves in power (a phenomenon he called the "iron law of oligarchy") an idea closely related to the persistent power held by members of the same family. More recently, Acemoglu and Robinson (2008) argue that the persistence of elite political power may result in captured democracies wherein economic institutions reflect the interests of the elite, irrespective of changes in political institutions. All of these arguments suggest that persistent control of political power by a small number of families may lead *de jure* democracies to not be very democratic *de facto.*

However, the observation of dynastic families is not necessarily evidence of self-perpetuation or persistence stemming from power per se. Members of political dynasties may have greater political power due to various observed and unobserved characteristics of the family such as wealth, talent, popularity or looks and not due to the political power of its past members. Evidence on the existence of self-perpetuation is relevant for understanding the potential effect of political dynasties on economic development and the openness of the political system.

In this paper, I study political dynasties in the Philippines and provide evidence for a

[1]For the Argentinean case see Rossi (2010), for the Japanese case see Asako et.al. (2010), see Camp (1982) for the Mexican case and Dal Bo, Dal Bo and Snyder (2009) for the U.S.

substantial *causal* effect of serving in office on the probability of having future relatives in office. The Philippines constitutes an interesting setting in which to address these questions as political dynasties are prevalent in many elected offices. For example, in the 2007 election, roughly 50% of elected Congressmen[2] and Governors were dynastic (had a previous relative in office). Moreover, in 40% of the 79 provinces, the Governor and Congressman are related. In the province of Leyte, a member of the Veloso family has been in power in every year since 1916. However, while political dynasties receive a great deal of attention from the media and academic literature in the Philippines[3], previous work has not provided any evidence for the existence of self-perpetuation. I begin by classifying every congressional and gubernatorial candidate between 1946 and 2007 as dynastic or non-dynastic. A candidate is classified as 'dynastic' if it had a previous relative serving in Congress or as Governor prior to the election. A simple comparison shows that dynastic candidates get a vote share which is 14 percentage points larger than that of non-dynastic candidates and are 22 percentage points more likely to win the election. Similarly, candidates who win an election are 4 times more likely to have a future relative in office than losing candidates.

These simple comparisons however, confound the effect of serving in office with other characteristics of the family. To estimate the *causal* effect of holding office on the probability of having a relative in power in the future (causal effect of power on dynastic persistence) I use a regression-discontinuity design based on close elections. The identification assumption is that the outcome of a close election is nearly random and does not depend on any characteristics of the candidates or their families. The main result of the paper is illustrated in Figure 1 which plots the fraction of non-dynastic candidates with posterior relatives in office and the vote share in their first election together with local polynomial regression estimates and their confidence intervals. There is a "political power treatment" that changes discontinuously at vote share=0.5. Those above this threshold win their first election and serve in office while those below the threshold do not serve (unless they run again in the future and win). The figure shows a discontinuous change in the probability of having posterior relatives in office

[2] In comparison, only 7% of current U.S. Congressmen had a previous relative in Congress. See Dal Bo, Dal Bo and Snyder (2009).

[3] See Coronel et.al. (2007), McCoy (1994), Hutchcroft (1998), De Dios (2007), Sidel (1999) and Simbulan (2005), amongst others.

around the 0.5 threshold. This discontinuous change constitutes the *causal* effect of winning and holding power on the probability of having posterior relatives in office and provides evidence of self-perpetuation. The regression analysis shows that candidates who barely won their first election are 17 percentage points more likely to have a relative in office after them than individuals who barely lost. These results are robust to the inclusion of province and year fixed-effects and to various definitions of what constitutes a close election.

The magnitude of this effect is remarkable and constitutes the main contribution of this paper. Instrumental variable estimates suggest that non-dynastic candidates who win their first election by a small margin are 4 times more likely (22 percentage points) to have a posterior relative in office than those who lost their first election by a small margin. Moreover, this suggests that the prevalence of dynastic politicians in the Philippines does not simply reflect the existence of a fixed group of powerful families. In fact, those without any family ties to politics who enter the political system become disproportionately more likely to create their own dynasty than those who fail in their first attempt to become politicians.

This paper is closely related to Dal Bo, Dal Bo and Snyder (2009) who use close elections in order to test for self-perpetuation in the U.S. Congress. They find that U.S. congressmen who barely won their first reelection attempt and served for more than one term are 5 percentage points more likely to have relatives serving in Congress after them, than those who barely lost their first reelection attempt. In another related paper, Rossi (2010) exploits an interesting natural experiment in Argentina where the term length of legislators elected to Congress in 1983 was randomly assigned. He finds that Congressmen who served a longer term are more likely to have a relative in office in the future. These two papers focus on incumbents and provide convincing evidence of self-perpetuation on the *intensive* margin: incumbents who serve for more than one term are more likely to have post-relatives in office than incumbents who only serve for one term. In this paper I consider not only incumbents but also losing candidates. Hence my main results focus on the *extensive* margin and the extent to which those who exercise power are more likely to have future relatives in office than those who lose and never serve. To my knowledge this is the first paper to present this type of evidence.

This paper is also related to a growing literature on the effect of the concentration of political power on economic development. Acemoglu, Bautista, Querubin and Robinson (2008)

find that municipalities in the state of Cundinamarca, Colombia, where political power was concentrated in relatively few families in the late 19th century, are currently poorer and have a lower provision of public goods. Similarly, Ferraz and Finan (2010) find that municipalities in Brazil, where power was concentrated in a small number of families between 1947 and 2000, have worse development outcomes today.

The rest of the paper is organized as follows: the next section provides some brief background on the political system in the Philippines and the origin of political dynasties, section 3 describes data sources and provides some descriptive statistics, section 4 presents the main results on the electoral advantage of dynastic candidates and on self-perpetuation and section 5 concludes.

1.2 Historical and Political Background

The Philippines, a Spanish colony for almost 400 years, shares a colonial history similar to that of most Latin-American countries. During the period of Spanish control, economic and political power was restricted to a small 'mestizo' elite known as the *principalia*[4]. The Spaniards relied on the clergy for the administration of the islands and never established a strong centralized State. Instead, power was dispersed amongst various elite families in the provinces. These families had the right to hold land, vote, and serve in positions of local political power. The most important position at the local level was the *gobernadorcillo*[5] (petty governor), elected by the principalia class from its own ranks and put in charge of collecting taxes and administering justice (See Simbulan, 2005 and Cullinane, 2003).

In 1899 with the arrival of the United States, the power of these families was further consolidated. Because these families controlled the land and the armies that fought the Spaniards between 1896 and 1898 and the United States from 1899 until 1902, the American authorities needed their support and loyalty in order to pacify the islands. Americans introduced

[4] *Some scholars such as Simbulan (2005) and Cullinane (2003) claim that the origins of the principalia can be traced back to the maharlika class in pre-colonial Philippines. The maharlika were at the top of the social pyramid and upon their arrival Spaniards gave them nobility status and used them to control the population and collect tribute for the encomenderos. With the elimination of the encomienda system came the towns and provinces and new positions of local power emerged. Former maharlikas and elected officials formed the principalia class, a status that became hereditary.*

[5] *The title of gobernadorcillo was changed to "municipal captain" after 1895 following the passage of the Maura Law in 1893 (Carlos, 1998).*

local elections for mayors in 1901, elections for a national legislature from single-member districts in 1907, and finally elections for the senate in 1916. Furthermore, those eligible to vote and run in these early elections had to belong to the principalia class or satisfy literacy and property requirements (Lande, 1965). This clearly contributed to the continuation of family power. These elite families enjoyed preferential access to agricultural products and credit from the Philippine National Bank further increasing their local power (De Dios and Hutchcroft, 2003). By 1908, Governor Taft was already warning that the purpose of the United States was not "merely to await the organization of a Philippine oligarchy or aristocracy competent to administer government and then turn the islands over to it."[6]

It was precisely the introduction of positions of power initially at the *local* level that gave principalia families substantial economic and political power. The subsequent introduction of elections at higher levels of government (provincial and Congressional district level), increased the families' sphere of influence. National politics and the central State became subordinated to the local dynamics of power. This power structure prevented the emergence of strong political parties with national platforms. The weakness of parties is often mentioned as an explanation for the importance of the family as a unit of political organization: parties did not emerge due to the local concentration of power and their weakness further consolidated the power of elite families (Sidel, 1999 and Hedman and Sidel, 2000).

In 1946, following a brief period of Japanese invasion during WWII, the Philippines became independent from the United States. Its government structure and electoral system resembled that of the U.S. 24 Senators were elected every 6 years from the country at large, with elections held every 4 years for provincial governors and congressmen. The House of Representatives was composed of members from single-member congressional districts. However, independence did little to curb the power of local families. Of 98 Congressmen elected in the first post-independence congress, 61 had either served under the Americans or came from a family that held power between 1901 and 1941.

In 1972, Ferdinand Marcos declared Martial Law and closed Congress. Marcos' political discourse revolved around the idea of breaking the power of the country's established oligarchy. However, by 1975 Marcos was acknowledging that martial law "may have liquidated an oli-

[6] See Owen (1971, p.14).

garchy, only to set up a new oligarchy (...) [establishing] the opportunities for graft, corruption and misuse of influence..."[7]. While Marcos succeeded in expropriating and weakening some of his political enemies, a new generation of "Marcos cronies" emerged during this period.

In 1986, following civilian unrest, Marcos was ousted from power and Corazon Aquino became president of the Philippines. The return to democracy, however, did not cause any major change in the power of political dynasties. Many political families that held power in the pre-martial law period were elected to Congress in 1987. Even Marcos' cronies and allies remained in power and ran successfully for many offices[8]. Of the 200 Congressmen elected in the 1987 elections, 113 were either members of established political dynasties or had served at some point between 1946 and 1986. A new constitution, drafted in 1987, introduced some changes to the political system. Congressional districts were reapportioned and term length was reduced from 4 to 3 years for Congress, Governors and other provincial and local offices. Most importantly, the constitution included a clause stating that:

> The State shall guarantee equal access to opportunities for public service and prohibit political dynasties as may be defined by law.

However, after 23 years, a dynasty-controlled congress has failed to pass legislation providing a definition of "political dynasty" making this constitutional provision vacuous. Similarly, the 1987 constitution introduced term-limits for all elective offices. Senators can only be elected to two consecutive 6-year terms while Congressmen and all other local officials can only be elected to three consecutive 3-year terms. This reform however, has not been successful in limiting the political power of dynasties. Elected officials are often replaced by their relatives after reaching the term-limit or switch to other elected offices. This is the topic of Querubin (2010).

Beyond the political institutions that lead to the emergence of powerful local elites and prevented the emergence of strong parties and a strong central state, some scholars argue that the prevalence of political dynasties is also associated with the importance of kinship in

[7] See Steinberg (2000, p.38).

[8] In fact most of Ferdinand Marcos' closest family members continue to occupy important elective positions. Imelda Marcos, his wife, was a congresswoman from 1995 to 1998 and got elected to Congress once more in the May, 2010 elections where she got 80% of the vote share. She replaced her son Ferdinand Jr. who was Governor of Ilocos Norte between 1998 and 2007, got elected to Congress in 2007 and was elected Senator in the past 2010 elections. Finally, Imee, Ferdinand's oldest daughter was also a Congresswoman between 1998 and 2007.

Philippine culture. Since pre-colonial times, the prevalent form of social organization was the *barangay* composed of members of extended families (also called clans). In the absence of a centralized authority, individuals relied on their relatives for the provision of credit, insurance, etc. Moreover, bilateral descent together with *fictional* kinship, introduced subsequently by the Spaniards, created very large extended families which became important economic and political organizations. In fact, the importance of kinship in the Philippines extends beyond politics into other occupations. For example, at the local level the "closed family corporation" is the predominant business structure[9] (Simbulan, 2005). While Dal Bo, Dal Bo and Snyder (2009) provide evidence showing that family persistence is more prevalent in politics than in other occupations in the U.S., similar evidence is not available, to my knowledge, for the Philippines.

1.3 Data and Descriptive Statistics

1.3.1 Data Sources

This paper focuses on the persistence of political families in two elective offices: House of Representatives and Provincial Governors. These are the only offices for which data on the identity of all incumbents dating back to 1901, when Americans appointed the first provincial governors, are available from official sources[10]. Most importantly, these are the most influential offices at the provincial level of government[11]. The Philippines is currently divided into 79 provinces that are headed by a provincial governor (top executive position). Provinces and cities are divided into multiple congressional districts, each of which elect a Congressman to the

[9] There is a literature that studies the consequences of family control of business organizations on firm performance in other countries. See Bennedsen et.al (2007) and Perez-Gonzales (2006) amongst others.

[10] The names of provincial governors for the period 1901-1935 come from the Roster of Public Officials available in the National Archives in Manila. Names of Congressmen for the period 1907-1972 come from the Congressional Directories available in the House of Representatives in Quezon City. Data for the period 1987-2010 comes from the Commission of Elections and Coronel et.al (2007).

[11] Elective offices in the Philippines vary according to the different subnational levels of government. The President, Vice-President and 24 senators are elected in the country at large. The main sub-national level of government is the province which is the equivalent of a U.S. State. In some cases, provinces are split into multiple congressional districts that elect a Congressman. The top executive position in the Province is the Governor followed by a Vice-Governor and a Provincial Board (equivalent of a U.S. State Legislature), all elected in the province at-large. The next sub-national level is the city/municipality (equivalent to a U.S. city/town) headed by an elected mayor, vice-mayor and body of councilors. Cities are also entitled to elect at least one congressman to the House of Representatives. Finally, municipalities and cities are subdivided into barangays (equivalent to a U.S. ward) who also elect a barangay captain.

House of Representatives (lower chamber of Congress)[12]. There are currently 219 Congressional districts in the Philippines, each composed of approximately 250,000 inhabitants[13]. I also constructed from various sources, a dataset with the name and number of votes obtained by all congressional and gubernatorial candidates for the period 1946-2007[14]. To my knowledge, this is the first paper to bring together these electoral data and to analyze them in a systematic way.

The dataset on incumbents includes 2,521 individuals who served as governors during the period 1901-2010 or as Congressmen during the period 1907-2010. The dataset on candidates covers 14 congressional and gubernatorial elections during the period 1946-2007 (7 before Marcos declared Martial Law and 7 after the restoration of democracy) corresponding to 3,104 different races and 6,920 candidates.

Dynastic Measures

The first step is establishing the number of prior and posterior relatives in office for all incumbents and candidates in the dataset. This was done by matching the candidates family names, with the family names of prior and posterior incumbent governors and congressmen within the same province. However, bilateral descent in the Philippines implies a particular structure of family names that must be taken into account. The name of a Filipino male or single female takes the form:

firstname midname lastname

where midname corresponds to the mother's family name and lastname corresponds to the father's family name. In the case of married women, names take the following form:

[12] Nonetheless, 28 provinces have lone congressional districts and elect only one Congressman from the province at large.

[13] The number of provinces and congressional districts has been increasing since 1907 due to reapportionment and the creation of new cities and provinces. There were originally 33 provinces and 80 Congressional districts in the first legislative elections in 1907. At the time of independence in 1946 the number of provinces had increased to 50 and the number of Congressional districts to 133.

[14] Electoral data for the period 1946-1972 was collected by hand from the original Canvass of Votes of the Commission of Elections available in microfilm at the Center for Research Libraries. Data for the 1987 Congressional and 1988 Gubernatorial elections were available in Gutierrez, Torrente and Narca (1992). Electoral data for the period 1992-2007 were provided by the Commission on Elections and the Institute for Popular Democracy.

firstname midname lastname-lastnamehusb

where again midname corresponds to the mother's family name, lastname corresponds to the father's family name and lastnamehusb corresponds to the husband's lastname.

Relatives are identified by finding a match of the midname, lastname or lastnamehusb within the same province, whenever these are available[15]. Relatives traced only by lastname would fail to identify wives (that play a crucial role in the post-1987 period), and some grandchildren. However, the results presented in this paper are similar if relatives are traced using only lastname.

A natural concern with the above matching procedure is that individuals from the same province who share a midname, lastname, or lastnamehusb may not necessarily be related biologically to each other[16]. While this is certainly a possibility, this is less of a concern in the Philippines than in other countries due to the peculiar way in which family names are distributed across the different provinces. In 1849, concerned with the arbitrary way in which Filipinos chose their surnames[17], Governor Narciso Claveria y Zaldua created a catalog with a list of 61,000 different surnames. A different set of surnames (often starting with the same letter) was assigned to each town and local officials had to assign a different surname to the different family heads[18]. As a consequence, common lastnames (such as Smith in the U.K. and U.S. or Gonzalez in Latin America) are not as prevalent in the Philippines. I also used various biographical sources to verify the accuracy of the relatives identified by the matching procedure for a sample of individuals[19]. Nonetheless the possibility of some measurement error remains.

[15] Several biographical sources were used to find the midnames of as many incumbents as possible. For most of the post-1946 Congressmen, midnames were found in the Congressional Directories available at the House of Representatives in Quezon City.

[16] This matching procedure will identify almost all existing relatives in the dataset. The main concern is the existence of *false positives*, or matches that do not correspond to actual relatives.

[17] Claveria complained that the natives "arbitrarily adopt the names of saints and this practice has resulted in the existence of thousands of individuals having the same surname. Likewise, I saw the resultant confusion with regard to the administration of justice, government, finance, and public order, and the far-reaching moral, civil and religious consequences to which this might lead, because the family names are not transmitted from the parents to their children, so that it is sometimes impossible to prove the degrees of consanguinity for purpose of marriage, rendering useless the parochial books which in Catholic countries are used for all kinds of transactions". See National Archives of the Philippines (1973).

[18] See National Archives of the Philippines (1973).

[19] In particular, Coronel et.al. (2007) provide a list of current and previous relatives in office for Congressmen elected in 1992, 1998, 2001 and 2004 and Governors elected in 2001 and 2004. This information is self-reported

Based on the above procedure, I construct several measures for each congressional and gubernatorial candidate in the dataset. The first measure is a *Dynastic_Ever* dummy which takes a value of one if the individual had a relative who served as governor or as congressman at any time prior to the year of election. In order to minimize the likelihood of matches not corresponding to relatives I also create the dummy *Dynastic_Recent* that takes a value of one if the individual had a relative who served as governor or as congressman in the 20 years prior to the year of election. Finally, I construct the dummy *Incumbent_Relative* that takes a value of one if the candidate is related to the current incumbent. Naturally, *Incumbent_Relative*$\subset$*Dynastic_Recent*$\subset$*Dynastic_Ever*.

In addition to the dynastic dummies, I also construct post-relative dummies that take a value of one if the candidate has any relatives who first enter the house of representatives or serve as governors at any time after the election (*Post_Relative_Ever*) or in the 20 years following the election (*Post_Relative_Recent*).

Other Data

The electoral variables are standard and correspond to the number of votes and the vote share of each candidate in each election. I also create a dummy variable for whether the candidate is the current incumbent seeking reelection in the same office (*Incumbent*).

Finally, for Congressmen elected in 1992, 1998 and 2001 I have information on various personal characteristics such as the gender, age, previous political experience and net worth that will allow me to describe the differences between dynastic and non-dynastic incumbents[20].

1.3.2 Descriptive Statistics

The main descriptive statistics are presented in Tables 1A-1C. Table 1A reveals that on average 25% of the candidates were dynastic if one considers the broader definition while the figure decreases to 18% once I focus on previous relatives in the 20 years prior to the election. This

by the politicians in their Sworn Statement of Assets and Liabilities and was verified by the Philippine Center for Investigative Journalism.

[20] These data were compiled by the Philippine Center for Investigative Journalism based on the self-reported, Sworn Statements of Assets and Liabilities that all elected officials must file. See Coronel at.al. (2007).

suggests that approximately 75% of the candidates who had a previous relative in office, had at least one relative in the two decades prior to running for office. The last two rows of Table 1A also demonstrate that only 12% of candidates have posterior relatives in office (9% under the narrower definition). These averages however, mask substantial variation across time and between those who get elected and those who lose the election. As Table 1A illustrates the fraction of dynastic individuals amongst elected incumbents ascends to 0.48 (0.4 using *Dynastic_Recent*) while amongst losing candidates the fraction is only 0.19 (or 0.12 under the narrower definition). Differences between winners and losers are particularly striking when comparing the post-relative measures; incumbents are approximately 5 times more likely to have a relative in office in the future than losers. These comparisons suggest that dynastic candidates have an electoral advantage over the non-dynastic. Indeed, Table 1B shows that dynastic candidates obtain almost twice the vote share of non-dynastic candidates and accordingly are twice more likely to win the election. Such electoral advantage is even more pronounced for candidates related to the current incumbent. I will explore all of these results in more detail in the next section.

Figure 2 illustrates the evolution of the different dynasty measures across time and for each office (House and Governor) separately. The figures in Panel A reveal an increasing trend in the fraction of dynastic candidates (and incumbents) and a remarkable similarity in the evolution of these measures in both offices. Such an increasing trend is not surprising for the *Dynastic_Ever* measure given that the pool of potential previous relatives becomes larger with time. However, the figures in Panel B reveal a similar increasing trend for the *Dynastic_Recent* variable, especially after the 1998 elections when the first cohort of congressmen and governors elected in 1988 reached the term limit. This is confirmed by the figures in Panel C that illustrate a substantial increase in the fraction of candidates related to the current incumbent starting in 1998 when wives, daughters and sons of term-limited incumbents ran to preserve their relatives' seat. In sum, these figures suggest an increasing trend in the fraction of dynastic candidates in both offices, which becomes more pronounced after term limits become binding from 1998 onwards for different cohorts of incumbents.

Finally, while I do not have any detailed information on candidate characteristics beyond their vote share and prior and posterior relatives, I do have data on some personal characteristics

of congressmen elected in the 1992, 1998 and 2001 elections. This allows me to characterize some simple differences between dynastic and non-dynastic incumbents that are reported in Table 1C. This table reveals that the fraction of women is substantially larger amongst dynastic incumbents suggesting that entry into politics may be especially hard for women not related to a previous politician. It also shows that dynastic incumbents are 5 years younger and accordingly have less political experience prior to entering Congress. While 15% of non-dynastic politicians held a local position of power such as municipality mayor, vice-mayor or councilor, this figure is only 10% for dynastic incumbents. Finally, the data suggests that dynastic incumbents are almost 50% (US$105,000) richer than the non-dynastic. All of the above differences are statistically significant.

1.4 Results

Given the similarity in the patterns of the dynastic and electoral variables in both offices, in the remaining analysis I pool congressional and gubernatorial elections. Similarly, for conciseness I only report results using the narrower (and more conservative) definitions of the dynastic and post-relatives measures that I will refer to as *Dynastic* and *Post_Relatives* respectively. However, the results are similar if I use the measures based on the broader definition.

1.4.1 Electoral Advantage of Dynastic Candidates

The first set of results focuses on the electoral advantage of dynastic candidates, already previewed in Table 1B. Evidence that dynastic candidates are more successful in elections and are more likely to win would provide preliminary evidence of dynastic persistence. To address this question I run an OLS regression of the form:

$$\begin{aligned} Vote\_Share_{ijt} &= \alpha + \beta Incumbent_{ijt} + \gamma Dynastic_{ijt} \\ &\quad + \lambda(Incumbent_{ijt} * Dynastic_{ijt}) + \delta_j + \phi_t + \varepsilon_{ijt} \end{aligned} \tag{1.1}$$

where $Vote\_Share_{ijt}$ is the vote share of candidate i from province j in election year t, $Incumbent_{ijt}$ is a dummy for whether candidate i is an incumbent at the time of the elec-

tion and $Dynastic_{ijt}$ is a dummy for whether the candidate is dynastic. In some specifications I also include a full set of provincial and time fixed effects (δ_j and ϕ_t respectively) to control for potential differences in political competition across provinces and across time. Finally, ε_{ijt} is an error term that captures all omitted influences. I include an *Incumbent* dummy in order to disentangle dynastic from incumbency advantage. The previous section showed that dynastic individuals are more numerous, in relative terms, amongst incumbents than amongst losing candidates. Hence, the dynastic dummy would confound dynastic and incumbency advantage. The results are presented in Table 2, where all standard errors are clustered at the candidate level (given that some candidates run multiple times). Column 1 suggests that dynastic candidates obtain a vote share that is 15 percentage points higher than that of non-dynastic candidates and the difference is statistically significant. This effect remains relatively unchanged once province and year fixed effects are included in column 2. The results also demonstrate a very large incumbency advantage: incumbents' vote share is 36 percentage points larger than that of non-incumbent opponents. Surprisingly however, the interaction term at the bottom of the table suggests that incumbency advantage is smaller for dynastic incumbents than for non-dynastic. In column 3, I add a dummy for whether the candidate is a relative of the current incumbent in order to disentangle the effect of candidates with a previous relative no longer in power from that of candidates whose relative currently controls office. The results reveal that candidates with a relative in power at the time of the election have a vote share which is 24 percentage points larger than that of non-dynastic candidates and 13 percentage points larger than that of other dynastic candidates. This suggests that a political dynasty is particularly likely to remain in power and persist if it can attempt to do so while one of its members currently holds power.

In columns 4-6 of Table 2, I estimate the same regressions as in columns 1-3 but instead of using the vote share as the dependent variable I use a dummy variable for whether the candidate wins the election. This is useful as it allows me to estimate the effect of being dynastic on the actual probability of winning the election. Consistent with the results of columns 1-3, columns 4-6 reveal that dynastic candidates are 23 percentage points more likely to win the election than non-dynastic candidates. Similarly incumbents are 56 percentage points more likely to win the election than non-incumbent opponents. Finally, the results reported in column 6 show that candidates with a relative currently in power are 41 percentage points more likely to win

than non-dynastic candidates and 24 percentage points more likely to win than other dynastic candidates.

The results in Table 2 suggest a substantial electoral advantage of dynastic candidates. However, as discussed in the introduction one cannot conclude from this evidence that dynastic candidates have an advantage simply because they have had a previous relative in office. In particular, other family characteristics correlated with electoral success such as wealth, charisma, talent or looks may be transmitted across family members and may simultaneously explain why a candidate had a previous relative in office and obtained a high vote share. In this case, one cannot interpret γ as the *causal* effect of having a previous relative in office on electoral success. I propose a strategy to address this issue in section 4.3.

1.4.2 Posterior Relatives and Electoral Success

An alternative way of looking at dynastic persistence is to test whether candidates who win and get elected to office are more likely to have posterior relatives in office than candidates who lose. The descriptive statistics presented in Table 1A suggested that this was the case but in this section I explore this relation more systematically.

To do so I estimate via OLS a regression of the form:

$$Post\_Relative_{ijt} = \alpha + \rho Winner_{ijt} + \lambda Vote\_Share_{ijt} + \delta_j + \phi_t + \nu_{ijt} \qquad (1.2)$$

where $Post\_Relative_{ijt}$ is a dummy that takes a value of 1 if candidate i in province j has any relatives in office in the 20 years following the election at time t, $Winner_{ijt}$ is a dummy that takes a value of 1 if candidate i wins the election and $Vote\_Share_{ijt}$ is the fraction of votes obtained. Some specifications also include a set of province fixed effects (δ_j) and year fixed effects (ϕ_t) and v_{ijt} is the error term. Equation (1.2) is estimated on the sample of non-dynastic candidates in order to avoid confounding the effect of the candidate with that of its previous relatives in office. Results are presented in Table 3 where again standard errors are clustered at the candidate level.

The regressions in columns 1 and 3 report the estimates for coefficient ρ on the $Winner$ dummy without controlling for the vote share. These results reveal that candidates who win and serve in office are 19 percentage points more likely to have posterior relatives in office. The point

estimate remains basically unchanged once I include province and year fixed effects (column 3). While this provides suggestive evidence of a treatment effect from serving in office on dynastic persistence the same caveat discussed in the previous section remains: ρ may confound the causal effect of serving in office with other characteristics that make members of a family more powerful and successful in elections. An alternative is to control for the vote share obtained by the candidate in the election. The vote share measures the electoral success and popularity of candidates and may control for some of the unobserved characteristics of candidates and its descendants (such as wealth, charisma and looks). The regression results, after controlling for the vote share, are reported in columns 2 and 4 of Table 3. Controlling for the vote share makes the coefficient on *Winner* fall by about 40%. Nonetheless, the estimate remains statistically significant at the 1% level and suggests that election winners are 12 percentage points more likely to have posterior relatives in office. Moreover, the vote share is also statistically significant at the 1% level and suggests that an increase of 10 points in the vote share is associated with an increase of 2 percentage points in the probability of having posterior relatives in office. These results are again robust to the inclusion of province and year fixed effects (column 4). While the vote share may capture some of the unobserved heterogeneity across candidates and their families, in the next section I propose a regression discontinuity design to control for the vote share in a more systematic way and capture the component of elections which is due to chance and not to characteristics of the candidates or their families. This allows me to explore whether access to the political system creates persistence.

1.4.3 Close Elections: Estimating the Causal Effect of Political Power on Dynastic Persistence

While the evidence in the previous section provides preliminary evidence of self-perpetuation such results cannot be interpreted as the *causal* effect of power on future relatives' probability of reaching elective office. To estimate a causal effect I perform a regression discontinuity analysis based on close elections[21].

Close elections provide a natural experiment to test for the existence of self-perpetuation.

[21] See Hahn, Todd and Van der Klaauw (2001) and Imbens and Lemieux (2007) for a general discussion of regression discontinuity designs and Lee (2007) for an application to close elections.

The underlying assumption is that the outcome of close races is nearly random and does not depend on any personal or family characteristics that were potentially confounding the estimates in Table 3[22]. More concretely, I will focus on the set of non-dynastic candidates (winners and runner-ups) who won or lost their first election by a small margin[23]. The focus on non-dynastic candidates is important in order to avoid confounding the effect of the candidate's previously elected relatives with its own effect. The margin of victory is defined simply as the difference between the vote share of the race winner and the runner up.

I define two baseline samples for the analysis. The first sample, *Baseline_1,* is composed of non-dynastic candidates who won or lost their first election by a margin of less than 5 percentage points. The second sample, *Baseline_2* is composed of non-dynastic candidates who won or lost their first election by a margin of less than 2.5 percentage points. It is also important to characterize the type of opponents that candidates in the baseline samples faced in their first election as this may influence the outcome of such races. If the outcome of close races is nearly random and resembles a coin toss, one should observe that 50% of the races are won by the candidates in the baseline samples and the remaining 50% by their opponents. A natural concern however, is that candidates in the baseline samples facing incumbents, dynastic or seasoned candidates (where seasoned refers to candidates who previously ran for office) are less than 50% likely to win as this type of opponents could manipulate the outcome of the close race in their favor.

Panel A of Table 4 reports the number of candidates in each sample while Panel B reports the fraction of races won by candidates in the different baselines according to the type of opponent they faced. The first row of Panel A shows that the first baseline (*Baseline_1*) is composed of 383 candidates out of which 116 were facing a dynastic candidate, 100 were facing an incumbent and 184 were facing a seasoned candidate. Moreover, in 67 races both the winner and runner-up were in this baseline (i.e. it was their first election, they were both non-dynastic and the margin of victory was less than 5%). The second row of Panel A reports the corresponding numbers for the second baseline (*Baseline_2*) where the fraction of opponents of

[22] For instance, in close races with a large electorate, the outcome may be determined by random factors such as election-day weather in certain precincts and will resemble a coin toss.

[23] I drop candidates whose first election was in 2007 (last election in my sample) as these could not have any relatives entering politics after them in my dataset.

each type is similar to the one found for *Baseline_1*. The candidates in both baseline samples are also distributed relatively evenly across the different election years (not reported). Most importantly, Panel B reports the fraction of races won by the candidates in the baseline samples. The first column shows that overall, candidates in *Baseline_1* won 48% of the races while those in *Baseline_2* won 49%. These fractions are not statistically different from 50% in either case (figures in brackets report the p-value of a T test for fraction=0.5). This validates the use of close elections as a natural experiment and suggests that their outcome is, indeed, as good as random. Columns 2-5 report the fraction of races won by candidates in the baseline samples by type of opponent. Column 2 shows that candidates in the baseline samples are less likely to win when facing a dynastic candidate; in *Baseline_1* they only won 42% of the races and this fraction is statistically different from 0.5 at the 10% level. This provides weak evidence that dynastic candidates may be able to manipulate the output of close elections in their favor. Similarly, incumbent opponents seem to win more than 50% of the races though in this case I cannot reject the null hypothesis that the fraction of races won is equal to 0.5. To address any concerns driven by these differences I perform robustness checks by excluding candidates in the baseline samples who faced a dynastic candidate or an incumbent. I also perform additional robustness checks by doing the analysis on races in which both the winner and runner-up were in the same baseline sample and where, by construction, 50% of the candidates won and 50% lost.

OLS Results

The main analysis is based on OLS estimates of the following equation:

$$\begin{aligned} Post\_Relative_{ijt} &= \alpha + \beta Winner_{ijt} + \omega_{ijt} \\ \forall i &\in Baseline\_1,\ Baseline\_2 \end{aligned} \tag{1.3}$$

where $Post\_Relative_{ijt}$ and $Winner_{ijt}$ are as defined previously and ω_{ijt} is the error term . The basic identifying assumption is that for the candidates in the baseline samples $E[\omega_{ijt}, Winner_{ijt}] = 0$ as $Winner_{ijt}$ is randomly assigned and hence β corresponds to the *causal effect* of serving in

office on dynastic persistence.

Table 5 reports the OLS estimates of equation (1.3). Column 1 shows the results for estimates based on *Baseline_1* and suggests that those who win and serve in office are 12 percentage points more likely to have posterior relatives in office. This coefficient is statistically significant at the 1% level. The results are relatively similar in column 2 once I add province and year fixed effects, further confirming the random assignment of $Winner_{ijt}$. Results for *Baseline_2* are reported in columns 3 and 4. The smaller margin of victory in this sample provides further confidence on the random assignment of $Winner_{ijt}$ but this comes at the expense of efficiency losses as the sample size falls by about 50%. Nonetheless, the results in column 3 are remarkably similar to those in column 1 based on the larger sample and suggest once more that officeholders are 12% more likely to have posterior relatives in office. This effect remains significant in column 4 where I include province and year fixed effects and in fact the point estimate of β increases by 0.051 points.

While results in columns 1-4 of Table 4 provide convincing evidence of self-perpetuation, they tend to be inefficient due to small sample issues. Hence, in columns 5 and 6 I apply the global polynomial estimation technique proposed by Hahn, Todd and Van der Klaauw (2001). I include all non-dynastic candidates and estimate equation (1.3) after including a fifth order polynomial in the vote share of their first election. The results remain very similar to those based on the smaller baseline samples and suggest a treatment effect of 0.11.

2SLS Results

The results reported in Table 5 correspond to the reduced form effect of winning or losing by a small margin in the first election. In other words they correspond to ITT (*intention to treat*) estimates. Nonetheless, some candidates who lose their first election may run again and eventually win. In this case, the results reported in Table 5 underestimate the causal effect of ever holding political power. To deal with this possibility, one can use the outcome of the first close election as an instrument for whether the candidate serves or not by running a first stage of the form:

$$Served_{ijt} = \mu + \tau Winner_{ijt} + u_{ijt} \tag{1.4}$$

where $Served_{ijt}$ is a dummy that takes a value of one if candidate i eventually serves in office and $Winner_{ijt}$, as before, is a dummy for whether candidate i wins his first election. One can then estimate a second stage regression of the form:

$$Post\_Relative_{ijt} = \varphi + \gamma \widehat{Served}_{ijt} + v_{ijt} \tag{1.5}$$

where $\widehat{Served}_{ijt}$ is the predicted value from the first stage (1.4). Table 6 reports the corresponding 2SLS estimates of γ for the equivalent columns of Table 5. As expected the point estimates are now larger and suggest a treatment effect of up to 0.23 points (in column 4) when I focus on *Baseline_2* and include province and year fixed effects.

Robustness Checks

The numbers in Panel B of Table 4 reveal that dynastic opponents and incumbents are slightly more likely to win close elections than the candidates in the baseline samples. This could potentially lead to a violation of the random assignment of $Winner_{ijt}$ in equation (1.3) and affect the results. As a robustness check, Table 7 estimates again the OLS and 2SLS regressions reported in the even columns of tables 5 and 6, but excludes races in which the opponent was either dynastic or an incumbent (columns 1, 3 and 5 in Table 7 correspond to the even columns of Table 5 while columns 2, 4 and 6 correspond to the even columns in Table 6). Even though sample sizes fall by almost 50% relative to those in Tables 5 and 6, the point estimates in Table 7 are very similar and the treatment effect ranges from 0.16 (OLS estimates in columns 1 and 5) to 0.25 (2SLS estimate in column 4).

The final robustness check is reported in Table 8, which re-estimates columns 1-6 of Table 7 on the sample of candidates facing an opponent also included in the baseline . That is, it eliminates candidates whose opponents were either dynastic, incumbents or had previously run for office. This implies dropping almost 65% percent of the observations used in Tables 5 and 6. Nonetheless, the results do not change substantially and suggest a treatment effect ranging from 0.15 (in column 1) to 0.23 (in column 6).

Overall, the results reported in Tables 3-8 provide robust evidence that winning elections and serving as representative in Congress or as provincial governor increases the probability of having a posterior relative in these offices by 15 to 22 percentage points. Compared to

the average probability of having posterior relatives in office for losing candidates (0.05), these estimates suggest that winning an election more than quadruples the probability of dynastic persistence. Moreover, the results based on close elections suggest that this result is causal and is not driven by unobserved characteristics of the candidates or their families. These point estimates are substantially larger than those found by Dal Bo, Dal Bo and Snyder (2009) who find that serving more than one term in the U.S. Congress increases the probability of having post-relatives in office by as much as 7 percentage points , and to those of Rossi (2010) who finds that serving an extra term in the Argentine legislature increases the probability of having relatives in future congresses by 8 percentage points. However, as mentioned in the introduction, their results capture the effect of serving many, as opposed to only one term in office (intensive margin) while my results focus on the effects of winning and serving in office vs. losing and not serving at all (extensive margin). To estimate results more comparable to those found in previous literature, the next section replicates the exercise of Dal Bo, Dal Bo and Snyder (2010).

1.4.4 Dynastic Persistence on the Intensive Margin

In this section, I focus on elected candidates in order to test whether those who serve for more than one term are more likely to have posterior relatives in office. To do so I estimate a regression of the form:

$$Post\_Relative_{ijt} = \alpha + \lambda Longterm_{ijt} + \delta_j + \phi_t + \eta_{ijt} \tag{1.6}$$

where $Post\_Relative_{ijt}$ is as defined before and $Longterm_{ijt}$ is a dummy that takes a values of 1 if incumbent i from province j who got first elected in year t served for more than one term and 0 if he only served for one term. As before, δ_j and ϕ_t are a set of province and year fixed effects and η_{ijt} is the error term. Results from OLS estimates of equation (1.6) are reported in columns 1 and 2 of Table 9. The estimates of λ suggest that incumbents who serve for more than one term are 15 percentage points more likely to have post-relatives in office than incumbents who only serve for one term. The estimated coefficient increases to 0.2 once province and year fixed effects are included in column 2. These estimates are almost six times larger than the equivalent OLS estimates reported by Dal Bo, Dal Bo and Snyder (2010) for

the U.S. Congress.

Alternatively, one can regress $Post\_Relative_{ijt}$ directly on the number of years served in office and estimate an equation of the form:

$$Post\_Relative_{ijt} = \alpha + \beta Years\_Office_{ijt} + \delta_j + \phi_t + v_{ijt} \tag{1.7}$$

where $Years\_Office_{ijt}$ corresponds to the number of years in office served by candidate i. Results of the OLS estimates of (1.7) are reported in columns 3-5 of Table 9. Results suggest that an additional year in power is associated with a 1 percentage point increase in the probability of having a posterior relative in office. Moreover, once I include a quadratic term in the number of years served (column 5), the results show that while an additional year in power increases the probability of dynastic persistence, this happens at a decreasing rate as the coefficient on the quadratic term is negative and statistically significant. Once more, the estimates in columns 3-5 are also almost 3 times larger than those reported by Dal Bo, Dal Bo and Snyder (2010) for the U.S. House of Representatives.

While the evidence reported in Table 9 provides suggestive evidence of a positive effect of tenure length on the probability of dynastic persistence one cannot interpret these estimates as causal. Once again, it is possible that unobserved family characteristics explain both why an incumbent serves for more than one term and has relatives in future offices. In order to find whether the effect reported in columns 1 and 2 of Table 9 is causal one can also use close elections as a natural experiment.

Regression Discontinuity Results on Close Elections in First Reelection Attempt

The natural approach to estimate the causal effect of a longer tenure in office on the probability of having posterior relatives in power is to focus on incumbents who barely won or barely lost in their first reelection attempt. This is precisely what Dal Bo, Dal Bo and Snyder (2009) do for U.S. Congressmen. I define two baseline samples similar to the ones introduced in section 4.3. The first sample, *Baseline_Incumbents_1* is composed of non-dynastic incumbents who won or lost their first reelection bid by a margin of less than 5 percentage points while *Baseline_Incumbents_2* is composed of non-dynastic incumbents who won or lost their first reelection bid by a margin of less than 2.5 percentage points. Sample sizes in this setting are

almost 75% smaller than those reported for the close election samples in Table 4: there are only 119 incumbents in *Baseline_Incumbents_1* and 51 in *Baseline_Incumbents_2*. Hence, these results must be interpreted with caution.

Table 10 reports the results of estimating by OLS equation (1.3) on the different baseline samples of incumbents. Contrary to the evidence provided by Table 9, results in columns 1-4 provide evidence of a slightly negative, but statistically insignificant effect of winning the first reelection attempt on the probability of having relatives in office in the future. A similar estimate is obtained when controlling for a 5th order polynomial in the vote share of all incumbents in their first reelection bid (columns 5 and 6). These results remain unchanged if the regressions in columns 1-6 are estimated by 2SLS using $Winner_{ijt}$ as an instrument for the $Longterm_{ijt}$ dummy previously defined (results not shown).

Given the large effects of winning the first election reported in section 4.3, it is perhaps not surprising that there is no marginal effect of winning additional elections. However, these results must be interpreted with caution. In particular, the estimates reported in Table 10 provide the *local* treatment effect of serving an additional term for the set of incumbents who won their first reelection by a small margin. Given the large incumbency advantage reported in Table 2, it may be that incumbents in these close-election samples are very different from other successful incumbents and hence the external validity of the results is questionable. For example, some of these incumbents may have performed very poorly or may have faced a corruption scandal and as a consequence they win (or lose) by a small margin and are less likely to have future relatives in office. These threats to external validity are a general concern with regression discontinuity designs and apply as well to the results presented in Tables 5-8. This concern however, also applies to Dal Bo, Dal Bo and Snyder (2009) who find a statistically significant effect at the intensive margin.

Moreover, the magnitude of the effects reported for the Philippines on the *extensive margin* suggest that a similar exercise for the United States may reveal a much larger effect than those reported by Dal Bo, Dal Bo and Snyder (2009). While theoretically possible, it would be surprising to find a statistically significant effect of winning reelection races on future relatives in office but to find no (or a smaller) effect of winning the first election.

1.5 Conclusions

This paper provides evidence of self-perpetuation in power by political dynasties in the Philippines. In particular, the results demonstrate that those who serve as Congressmen or Provincial Governors are four times more likely to have a future relative in office than candidates who run and lose. Moreover, these estimates suggest that this effect is not driven by unobserved characteristics of candidates and their families; there is a causal effect from holding political power on the electoral success of future relatives. This causal effect is estimated using a regression discontinuity design based on close elections where candidates who win their first election by a small margin are compared to those who barely lose in their first attempt to reach Congress or the provincial governorship. Results are robust to different definitions of what constitutes a close race (different margins of victory and types of opponent) as well as to the inclusion of province and year fixed effects.

This evidence complements previous research by Dal Bo, Dal Bo and Snyder (2009) and Rossi (2010) for the U.S. and Argentina respectively, who find that incumbents who serve for a longer period of time are more likely to have relatives in future elective offices. However, the magnitude of the effect reported in this paper is substantially larger than the effects reported by these studies. Moreover, this paper finds no causal effect of winning an additional election and serving for more than one term, on dynastic persistence. Future research should estimate comparable effects on the *extensive margin* for United States congressmen and governors in order to establish whether the patterns found in the Philippines (and their magnitude) are atypical and reveal a different type of incumbency advantage and dynastic persistence.

The findings presented in this paper are an important step towards the understanding of how democratic political systems function in practice. The existence of dynastic persistence reveals that electoral democracies may be captured by individuals from a given set of families who have a disproportionate chance of accessing power. Indeed, evidence from the Philippines suggests that dynastic candidates are 22 percentage points more likely to win an election than individuals without any previous relatives in office. However, these results also reveal that the political system may create new powerful families because non-dynastic individuals who access office are more likely to create a political dynasty of their own. In other words, the prevalence of dynastic politicians in the Philippines does not simply reflect the existence of a

set of historically powerful families. Instead, the political system itself creates persistence.

Most importantly, the evidence reported in this paper motivates a series of research questions related to the *causes* behind the persistence of these families as well as the *consequences* on policy and economic development in the Philippines. Dynastic persistence in a weakly institutionalized democracy such as the Philippines may have very different causes and consequences than in a consolidated democracy such as the United States, where political institutions are more effective at constraining the behavior of politicians. Future research should seek to understand whether the persistence in power of these families is driven by wealth accumulated while in office, the political experience and electoral networks inherited by incumbents to their relatives, or simply the name recall advantage that candidates from political families enjoy in the presence of uniformed voters. The fact that dynastic candidates whose relative is currently in office exhibit the largest electoral advantage suggests that incumbents may actively use their office to continue their relatives' power. This constitutes an incumbency advantage that spills over to relatives.

Similarly, understanding the consequences of this dynastic persistence on policy outcomes and public goods provision is important in order to determine whether reforms aimed at preventing the entrenchment of political dynasties are desirable. Mean reversion in talent suggests that a society that draws it leaders from a small set of families could end up with politicians of lower quality. Another natural concern is that families use political power in order to further their own interests and appropriate rents at the expense of the majority of the population. However, it is also possible that elections are successful in keeping politicians in check and that political competition provides incentives for good performance while in office.

Finally, additional research is necessary to understand whether reforms of political institutions, such as the introduction of campaign finance reform or term limits, for example, are effective methods to change the dynastic equilibrium in these democracies. If the power of these families is based on sources outside public office (such as the ownership of land or the creation of private armies) as many scholars argue, it is unlikely that changes in formal political institutions will curb the persistence in power of these families. This is the topic of Querubin (2010) where I explore whether the introduction of term limits in 1987 changed the dynastic nature of politics in the Philippines.

Table 1
Descriptive Statistics

Table 1A: Characteristics of Winning and Losing Candidates (1946-2007)

	All Candidates	Elected	Losers
Number of Individuals	6920	1409	5511
Fraction *Dynastic_Ever*=1	0.25	0.48	0.19
Fraction *Dynastic_Recent*=1	0.18	0.40	0.12
Fraction *Post-Relatives_Ever*=1	0.12	0.31	0.07
Fraction *Post-Relatives_Recent*=1	0.09	0.26	0.05

Table 1B: Electoral Performance of Dynastic and Non-Dynastic Candidates

	Dynastic Recent	Incumbent Relative	Non-Dynastic
Probability of Winning	0.478	0.536	0.218
Vote Share	0.398	0.435	0.228

Table 1.C: Differences between Dynastic and Non-Dynastic Incumbents elected in 1992, 1998 and 2001

	Dynastic Recent	Non-Dynastic	P-value
Fraction Female	0.24	0.10	0.00
Average Age	49.5	54.8	0.00
Fraction Previous Local Position	0.10	0.15	0.02
Average Net Worth (2009 $US)	321644	216947	0.02

Table 2
OLS Regressions for Vote Share, Winner Dummy and Type of Candidate

	Dependent Variable is:					
	Vote Share			Winner Dummy		
	(1)	(2)	(3)	(4)	(5)	(6)
Dynastic	0.147	0.137	0.107	0.226	0.220	0.164
	(0.006)	(0.006)	(0.007)	(0.013)	(0.013)	(0.014)
Incumbent	0.357	0.349	0.350	0.561	0.575	0.576
	(0.007)	(0.007)	(0.007)	(0.014)	(0.014)	(0.014)
Incumbent Relative			0.132			0.247
			(0.013)			(0.030)
Dynastic*Incumbent	-0.078	-0.079	-0.048	-0.131	-0.128	-0.071
	(0.012)	(0.012)	(0.013)	(0.024)	(0.025)	(0.026)
Constant	0.178	0.187	0.190	0.139	0.160	0.167
	(0.003)	(0.033)	(0.033)	(0.004)	(0.058)	(0.058)
Province Fixed Effects	NO	YES	YES	NO	YES	YES
Year Fixed Effects	NO	YES	YES	NO	YES	YES
Observations	11435	11435	11435	11435	11435	11435
R-squared	0.349	0.385	0.393	0.247	0.265	0.272

Robust Standard Errors, clustered at the candidate level are reported in parentheses. Sample includes all candidates for Congressional and Gubernatorial elections for the period 1946-2007. Dynastic is a dummy variable that takes a value of 1 if the candidate had a relative who served as Congressman or Governor in the 20 years prior to the election. Incumbent Relative is a dummy that takes a value of 1 if the candidate is related to the current incumbent. Incumbent is a dummy that takes a value of 1 if the candidate is the current incumbent seeking reelection.

Table 3
OLS Regressions for Post-Relatives, Winner Dummy and Vote Share

Dependent Variable is Posterior Relatives Dummy

	(1)	(2)	(3)	(4)
Winner	0.188	0.124	0.186	0.119
	(0.015)	(0.015)	(0.015)	(0.014)
Vote_Share		0.162		0.175
		(0.021)		(0.021)
Province Fixed Effects	NO	NO	YES	YES
Year Fixed Effects	NO	NO	YES	YES
Observations	9142	9142	9142	9142
R-squared	0.084	0.092	0.120	0.129

Robust Standard Errors, clustered at the candidate level are reported in parentheses. Sample includes all non-dynastic candidates for Congressional and Gubernatorial elections for the period 1946-2007. Dependent variable is a dummy variable that takes a value of 1 if the candidate had a relative who entered Congress or the Provincial Governorship in the 20 years following the election. Winner is a dummy that takes a value of 1 if the candidate wins the election.

Table 4
Non-Dynastic Candidates in Close Elections in their First Election

Panel A: Number of Individuals in Baseline according to type of Opponent

	Total	Opponents			
		Dynastic	Incumbents	Seasoned	In Same Baseline
Baseline_1 (Win Margin<=0.05)	383	116	100	184	67
Baseline_2 (Win Margin<=0.025)	190	54	42	82	37

Panel B: Probability of Winning according to type of Opponent

		Dynastic	Incumbents	Seasoned	In Same Baseline
Baseline_1 (Win Margin<=0.05)	0.475 [0.332]	0.422 [0.095]	0.46 [0.427]	0.489 [0.769]	0.500 [1.000]
Baseline_2 (Win Margin<=0.025)	0.489 [0.773]	0.463 [0.591]	0.442 [0.452]	0.500 [1.000]	0.500 [1.000]

Numbers in brackets in Panel B are p-values of a T-test where the null hypothesis is that the fraction of races won=0.5. Baseline_1 is composed of non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 5 percentage points. Baseline_2 is composed of non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 2.5 percentage points. Seasoned opponents are those who previously ran for office.

Table 5

OLS Regressions for Posterior Relatives: Regression Discontinuity Results

Dependent Variable is Posterior Relatives Dummy

	Baseline_1 5% Margin		Baseline_2 2.5% Margin		All Non-Dynastic Candidates 5th Order Polynomial	
	(1)	(2)	(3)	(4)	(5)	(6)
Winner	0.116	0.131	0.120	0.171	0.111	0.112
	(0.032)	(0.034)	(0.045)	(0.052)	(0.031)	(0.031)
Province Fixed Effects	NO	YES	NO	YES	NO	YES
Year Fixed Effects	NO	YES	NO	YES	NO	YES
Observations	383	383	190	190	1821	1821
R-squared	0.034	0.269	0.037	0.454	0.053	0.122

Robust standard errors in parentheses. Dependent variable is a dummy that takes a value of 1 if the candidate has any relatives first entering Congress or the Provincial Governorship in the 20 years following the election. Winner is a dummy that takes a value of 1 if the candidate wins the election. Regressions in columns 1 and 2 include all non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 5 percentage points. Regressions in columns 3 and 4 include non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 2.5 percentage points. Regressions in columns 5 and 6 include all non-dynastic candidates who were winners or runner-ups in their first election. Columns 5 and 6 include a 5th order polynomial in the vote share of the first election, where the vote share is defined as the share of the votes obtained by the top 2 candidates.

Table 6
2SLS Regressions for Posterior Relatives: Regression Discontinuity Results

Dependent Variable is Posterior Relatives Dummy

	Baseline_1 5% Margin		Baseline_2 2.5% Margin		All Non-Dynastic Candidates 5th Order Polynomial	
	(1)	(2)	(3)	(4)	(5)	(6)
Served	0.156	0.172	0.167	0.233	0.156	0.156
	(0.043)	(0.044)	(0.063)	(0.069)	(0.043)	(0.042)
Province Fixed Effects	NO	YES	NO	YES	NO	YES
Year Fixed Effects	NO	YES	NO	YES	NO	YES
Observations	383	383	190	190	1821	1821
R-squared	0.055	0.299	0.037	0.477	0.054	0.124

Robust standard errors in parentheses. Dependent variable is a dummy that takes a value of 1 if the candidate has any relatives first entering Congress or the Provincial Governorship in the 20 years following the election. Served is a dummy that takes a value of 1 if the candidate ever serves in Congress or as Provincial Governor. Coefficients reported are for the second stage of a 2-stage least squares regression where in the first stage, Served is instrumented with Winner, a dummy for whether the candidate wins its first election. Regressions in columns 1 and 2 include all non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 5 percentage points. Regressions in columns 3 and 4 include non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 2.5 percentage points. Regressions in columns 5 and 6 include all non-dynastic candidates who were winners or runner-ups in their first election. Columns 5 and 6 include a 5th order polynomial in the vote share of the first election, where the vote share is defined as the share of the votes obtained by the top 2 candidates.

Table 7

Robustness Checks: Close Elections against Non-Dynastic and Non-Incumbent Opponents

Dependent Variable is Posterior Relatives Dummy

	Baseline_1 5% Margin		Baseline_2 2.5% Margin		All Non-Dynastic Candidates 5th Order Polynomial	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Winner	0.155		0.189		0.129	
	(0.050)		(0.077)		(0.050)	
Served		0.190		0.245		0.161
		(0.060)		(0.098)		(0.062)
Province Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	192	192	100	100	780	780
R-squared	0.402	0.417	0.491	0.506	0.165	0.175

Robust standard errors in parentheses. Dependent variable is a dummy that takes a value of 1 if the candidate has any relatives first entering Congress or the Provincial Governorship in the 20 years following the election. Winner is a dummy that takes a value of 1 if the candidate wins the election. Served is a dummy that takes a value of 1 if the candidate ever serves in Congress or as Provincial Governor. Coefficients reported in columns 2, 4 and 6 are for the second stage of a 2-stage least squares regression where in the first stage, Served is instrumented with Winner. Regressions in columns 1 and 2 include all non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 5 percentage points against a non-dynastic and non-incumbent opponent. Regressions in columns 3 and 4 include non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 2.5 percentage points against a non-dynastic and non-incumbent opponent. Regressions in columns 5 and 6 include all non-dynastic candidates who were winners or runner-ups against non-dynastic or non-incumbent opponents in their first election. Columns 5 and 6 include a 5th order polynomial in the vote share of the first election, where the vote share is defined as the share of the votes obtained by the top 2 candidates.

Table 8
Robustness Checks: Close Elections-Both Winner and Runner-Up in Baseline Sample

Dependent Variable is Posterior Relatives Dummy

	Baseline_1 5% Margin		Baseline_2 2.5% Margin		All Non-Dynastic Candidates 5th Order Polynomial	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Winner	0.149		0.162		0.156	
	(0.054)		(0.071)		(0.060)	
Served		0.192		0.222		0.234
		(0.068)		(0.095)		(0.090)
Province Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	134	134	74	74	544	544
R-squared	0.425	0.449	0.579	0.599	0.263	0.269

Robust standard errors in parentheses. Dependent variable is a dummy that takes a value of 1 if the candidate has any relatives first entering Congress or the Provincial Governorship in the 20 years following the election. Winner is a dummy that takes a value of 1 if the candidate wins the election. Served is a dummy that takes a value of 1 if the candidate ever serves in Congress or as Provincial Governor. Coefficients reported in columns 2, 4 and 6 are for the second stage of a 2-stage least squares regression where in the first stage, Served is instrumented with Winner. Regressions in columns 1 and 2 include all non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 5 percentage points against a non-dynastic, non-incumbent and non-seasoned opponent. Regressions in columns 3 and 4 include non-dynastic candidates (winners and runner-ups) who won or lost their first election by a margin smaller than 2.5 percentage points against a non-dynastic, non-incumbent and non-seasoned opponent. Regressions in columns 5 and 6 include all non-dynastic candidates who were winners or runner-ups against non-dynastic, non-incumbent and non-seasoned opponents in their first election. Columns 5 and 6 include a 5th order polynomial in the vote share of the first election, where the vote share is defined as the share of the votes obtained by the top 2 candidates.

Table 9
OLS Regressions for Post-Relatives, Long Term Dummy and Number of Years in Power
Only Elected Candidates

Dependent Variable is Posterior Relatives Dummy

	(1)	(2)	(3)	(4)	(5)
Long Term Dummy	0.150	0.202			
	(0.024)	(0.027)			
Years_Office			0.00603	0.01035	0.02626
			(0.00146)	(0.00167)	(0.00379)
Years_Office^2					-0.00036
					(0.00008)
Province Fixed Effects	NO	YES	NO	YES	YES
Year Fixed Effects	NO	YES	NO	YES	YES
Observations	1292	1292	1292	1292	1292
R-squared	0.025	0.131	0.01561	0.12357	0.13955

Robust Standard Errors are reported in parentheses. Sample includes incumbent Congressmen and Governors during the period 1946-2007. Dependent variable is a dummy variable that takes a value of 1 if the candidate has a relative who first entered Congress or the Provincial Governorship in the 20 years following the election. Longterm is a dummy that takes a value of 1 if the incumbents serves for more than one term. Years_Office corresponds to the total number of years serving as Congressmen and/or Governor during 1946-2007.

Table 10

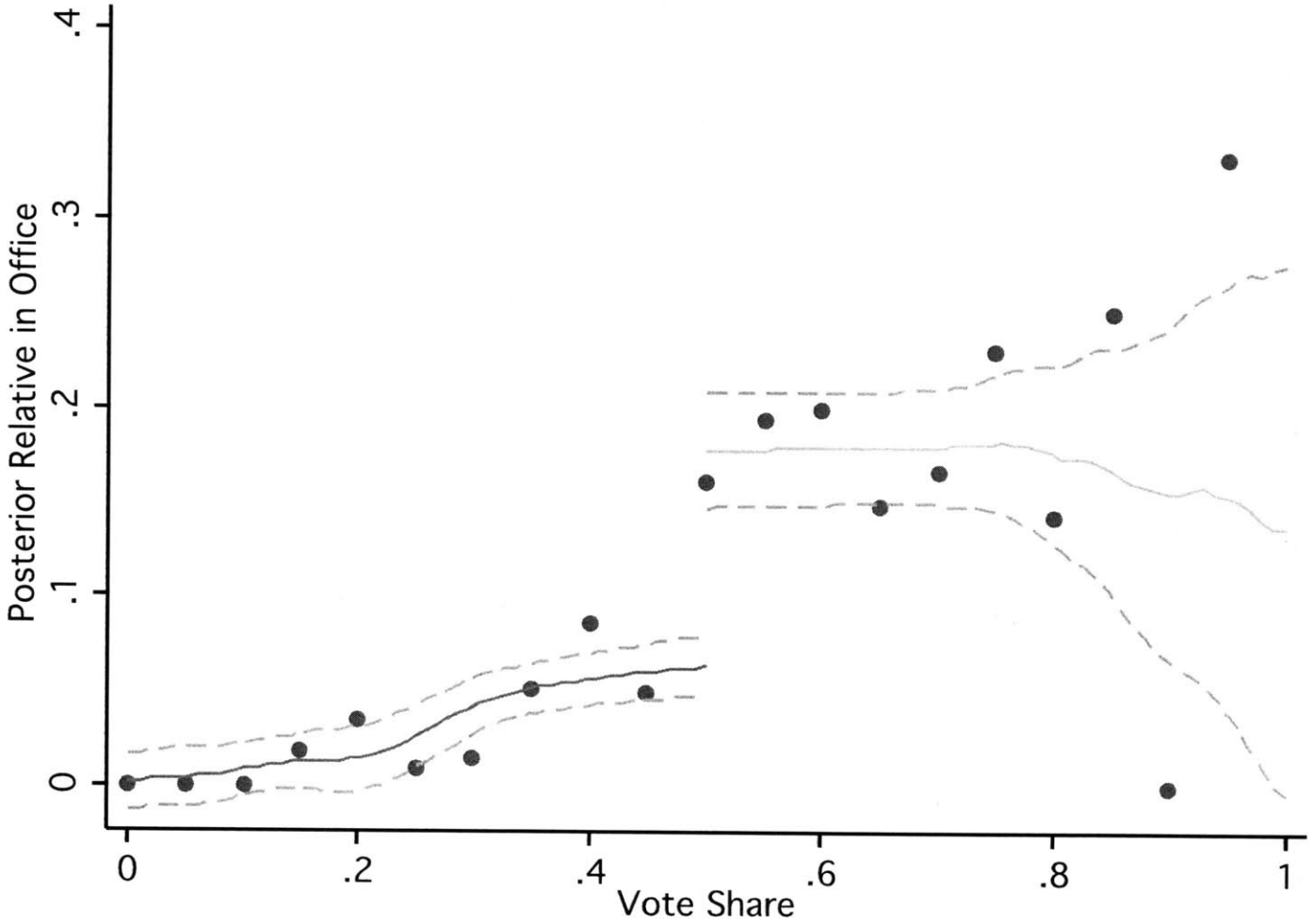
OLS Regressions for Posterior Relatives: Regression Discontinuity Results on Intensive Margin Incumbents on First Reelection Attempt

Dependent Variable is Posterior Relatives Dummy

	Baseline_Incumbents_1 5% Margin		Baseline_Incumbents_2 2.5% Margin		All Non-Dynastic Incumbents 5th Order Polynomial	
	(1)	(2)	(3)	(4)	(5)	(6)
Winner	-0.008	0.031	-0.092	0.082	-0.066	-0.053
	(0.058)	(0.072)	(0.080)	(0.275)	(0.059)	(0.065)
Province Fixed Effects	NO	YES	NO	YES	NO	YES
Year Fixed Effects	NO	YES	NO	YES	NO	YES
Observations	119	119	51	51	638	638
R-squared	0.000	0.719	0.024	0.828	0.040	0.220

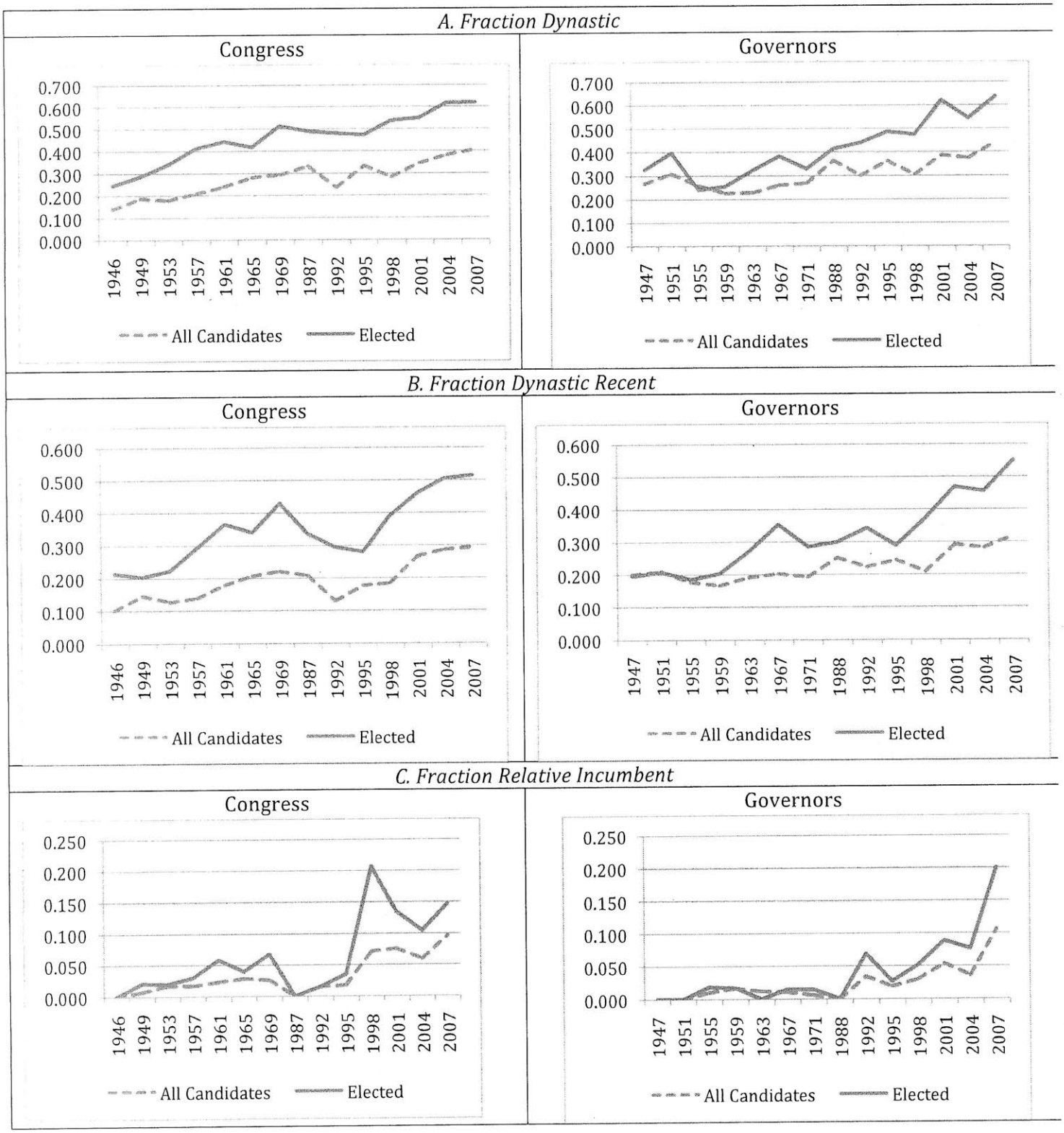
Robust standard errors in parentheses. Dependent variable is a dummy that takes a value of 1 if the candidate has any relatives first entering Congress or the Provincial Governorship in the 20 years following the election. Winner is a dummy that takes a value of 1 if the candidate wins the election. Regressions in columns 1 and 2 include all non-dynastic incumbents who won or lost their first reelection attempt by a margin smaller than 5 percentage points. Regressions in columns 3 and 4 include non-dynastic incumbents who won or lost their first reelection attempt by a margin smaller than 2.5 percentage points. Regressions in columns 5 and 6 include all non-dynastic incumbents who were winners or runner-ups in their first reelection attempt. Columns 5 and 6 include a 5th order polynomial in the vote share of the first election, where the vote share is defined as the share of the votes obtained by the top 2 candidates.

Figure 1
Posterior Relatives in Office and Vote Share in First Election



Sample in the figure includes all non-dynastic candidates who were winners or runner-ups in their first election. Dots in the figure show the fraction of candidates with future relatives in Congress or Provincial Governorship, for different bins of the vote share in their first election where the vote share corresponds to the share of the votes obtained by the top 2 candidates. Candidates with vote share>0.5 win and become Congressmen or Provincial Governors while those with vote share<0.5 lose their first election and do not serve (unless they run again and win). Solid lines correspond to local polynomial regressions at each side of the threshold and the dashed lines are the corresponding 95% confidence intervals.

Figure 2
Fraction of Candidates that are Dynastic, Dynastic Recent and Related to the Incumbent
By Election Year: 1946-2007



Chapter 2

Political Reform and Elite Persistence: Term Limits and Political Dynasties in the Philippines

2.1 Introduction

Existing research on the political economy of development emphasizes the role of elites in shaping the economic and political institutions that constitute the fundamental determinants of economic development. Classical elite theorists such as Mosca (1939) and Pareto (1968 [1901]) highlight the disproportionate power of certain elite groups in society. Michels (1911) notes the tendency of elites to perpetuate themselves in power and persist across time. More recently, Acemoglu and Robinson (2008) emphasize the way by which elite persistence may undermine attempts to reform institutions, leading to "captured democracies" wherein economic institutions and policies disproportionately benefit the elite.

Political dynasties exemplify a particular form of elite persistence. The Philippines is a notable example. More than half of elected Philippine congressmen and governors have had a relative in office previously. Additionally, in 40% of the 79 provinces the provincial governor and Congressman are related. In Querubin (2010), I study political dynasties in the Philippines and provide evidence that the prevalence of dynastic politicians is not simply driven by specific

characteristics of members of these families such as wealth, talent or looks. There is evidence of a *causal effect* of entering politics on the probability of having future relatives in office. This suggests that (access to) the political system itself creates dynastic persistence and leads to disproportionate political power in some families. Various scholars argue that the dynastic nature of Philippine politics has lead to a personalized style of politics that undermines the creation of a strong State (Hedman and Sidel, 2000 and Coronel at.al, 2007). As a consequence, the reform of important economic institutions and the adoption of nation-wide policies are often blocked by members of dynasties who benefit from the status-quo. Others claim that the resiliency of dynasties is associated with rent-seeking and the allocation of State resources to further private interests (McCoy, 1994 and Hutchcroft, 1998).

A natural question in this context is whether certain political reforms can break the dynastic pattern and open up the political system. In 1987, following the return to democracy after a 15-year long dictatorship by Ferdinand Marcos, a new Philippine Constitution introduced various changes aimed at decreasing the power of political dynasties. For example, Article II, Section 26 of the Constitution included a clause stating:

> The State shall guarantee equal access to opportunities for public service and prohibit political dynasties as may be defined by law.

However, after 23 years, a dynasty-controlled congress has failed to pass legislation providing a definition of "political dynasty" making this constitutional provision vacuous. Most importantly, the 1987 constitution introduced term limits for all elective offices. Senators can only be elected to two consecutive 6-year terms while congressmen, governors and all other local officials can only be elected to three consecutive 3-year terms. Some political analysts and scholars were optimistic, hoping these Constitutional provisions would open the political system. For example, McCoy (1994, p. xvii) stated that "Aquino's Constitutional Comission adopted articles designed to break, for all time, the influence of political dynasties through both universal term limits and a specific prohibition on relatives (...) holding any public office." More generally, scholars such as Cromwell (1990) argue that term limits can bring to an end "a conspiracy of circumstances that has, de facto, robbed the electorate of a meaningful say in who does and does not belong to office."

In this paper, I analyze the extent to which term limits have effectively decreased the persistence of political dynasties in the Philippines. From a conceptual point of view, the general equilibrium effects of term limits in an elite-dominated democracy such as the Philippines are not obvious. Most arguments in favor of term limits are based on the existence of an incumbency advantage which establishes implicit barriers to entry to the political system. The direct effect of term limits is to eliminate incumbency advantage periodically on a given office. However, in a dynastic democracy, incumbency advantage may spill over to other elected offices and, most importantly, to other members of the incumbent's family. As a consequence, there can be countervailing effects to the direct effect of term limits if term-limited incumbents retain power by running for another office or field their relatives to replace them in order to maintain *family* control. Whether these countervailing effects are strong enough to undermine the effects of term limits on dynasties is an empirical question I address in this paper. Moreover, one could think of an even stronger general equilibrium effect by which term limits force term-limited incumbents to run for higher offices while training and bringing additional family members into politics, making dynasties *more* powerful as the family controls various offices simultaneously. These potential general equilibrium effects constitute a special case of a more general point made by Acemoglu and Robinson (2008) and Acemoglu et. al. (2008) amongst others: the introduction of political institutions that do not modify the underlying sources of political power may be ineffective in changing the political equilibrium as those affected will use their power to adapt and remain powerful under the new institutions.

The experience of the infamous Marcos family illustrates some of the patterns and countervailing effects that I explore in greater detail in this paper. In 1998 Ferdinand Marcos' son Ferdinand Jr. and his daughter Imee won the gubernatorial and congressional elections, respectively, in the province of Ilocos Norte. They were both reelected in 2001 and 2004. By the end of 2007, they had served three consecutive terms and could not run again due to term limits. This however, did not hurt in any substantive way the political power of the Marcos family. Ferdinand Jr. ran successfully in the 2007 elections for Congress and replaced his sister Imee. Michael Marcos Keon, Ferdinand Jr's cousin, ran successfully for governor in 2007, replacing Ferdinand Jr. as governor. The Marcos family, despite facing binding term limits, managed to keep both offices in the family by having other relatives run to replace them. Ferdinand

Jr. maintained his own political power by running for a different office[1]. This example is not atypical. One family remained in power for at least 19 years between 1987 and 2010 in almost 50 Congressional districts, despite term limits.

In this paper I find that term limits have no effect on the persistence of political dynasties in the Philippines. Once I account for the countervailing effects described above, I find no statistically significant effect of term limits on the probability that the same family remains in power in the short and long run.

In addition to the countervailing effects dynasties may exhibit *after* term limits bind, term limits may also lead to changes in the strategic behavior of challengers *before* they bind. In the presence of incumbency advantage, incumbents under term limits may now be able to discourage high-quality challengers who prefer to wait for the incumbent to be "termed-out" rather than risk their political career by running against an incumbent and losing with higher probability. As a consequence, term limits may make incumbents *safer* in the early terms prior to the term limit. This effect is independent of the existence of political dynasties and may occur more generally in democracies that exhibit a substantial incumbency advantage.

The empirical analysis presented in this paper explores more systematically the prevalence and magnitude of these effects. First, I briefly explore the effects of term limits on incumbents *before* term limits bind. I find that incumbency advantage increases considerably after 1987 in the presence of term limits. As a consequence, incumbents were more likely to serve for three consecutive terms after 1987 than during the first democratic spell between 1946 and 1972 when term limits were not in place. An important caveat is that these differences in the post-1987 period may be attributed to other factors which also changed after 1987. However, several facts point to the challenger-disuassion interpretation provided above. For example, I find that races with incumbents running for reelection exhibit a smaller fraction of dynastic opponents compared to open-seat races. This becomes particularly pronounced in the term limits environment after 1987. Moreover, while no single Congressional race was uncontested during the 1946-1972 period, 63 Congressional races were uncontested after 1987, almost all of them being races in which an incumbent was running for reelection. This provides suggestive

[1] In the most recent 2010 elections, Ferdinand Jr. ran succesfully for the Philippines Senate but his seat in Congress was taken by his mother Imelda who won the election with over 80% of the vote share.

evidence that term limits may indeed induce a strategic reaction by strong challengers who prefer to run in an open-seat race rather than face an incumbent.

Second, I consider the countervailing effects of incumbents and their families *after* term limits bind. In particular, I explore whether the patterns revealed by the anecdotal evidence of the Marcos family (running for a different office after term limits bind and the replacement of term-limited incumbents by their relatives) are strong enough to undermine the overall effectiveness of term limits on political dynasties. To do so, I first report evidence that incumbency advantage may spill over to different offices and family members once term-limits bind. This suggests that incumbents, when reaching their term-limit, may try to run for a different office or attempt to "bequeath" their seat to their relatives, preserving the political power of the dynasty. I explore this empirically by estimating difference-in-difference regressions to test whether the families of incumbents in their 3rd term (and term-limited in the post-1987 period) are less likely to remain in power (either in the same office or in another elected office) than incumbents in their 2nd term and not yet subject to any binding limit.

The results suggest that when we consider the dynasty as the unit of observation, the direct effect of term limits on the individual incumbent falls by almost 50%. Moreover, once I consider simultaneously the possibility of the term-limited incumbent running for a different office and being replaced by a relative, I find no statistically significant effect of term limits on the probability that the incumbent *family* remains in power. This is the main result of the paper. Finally my results also show that term limits do not decrease the probability of having dynastic incumbents: term-limited incumbents are often replaced either by their relatives or by members of other established dynasties. This suggests that term limits are not able to change the underlying sources of power of political dynasties. As a consequence, incumbent politicians adapt to preserve their power.

The paper proceeds as follows: section 2 presents a brief review of related literature, section 3 includes a discussion of some institutional details and provides some descriptive and anecdotal evidence, section 4 presents the main results of the paper and section 5 concludes.

2.2 Related Literature

Term limits date back to early democratic societies. Members elected to the council of five hundred in Athens during the fourth and fifth centuries B.C. were subject to a two-year limit. Rotation in office was believed to be important because it serves to represent a diversity of interests and prevents the use of office for private gain[2]. Term limits were also present in the Articles of Confederation which stated that members of Congress could not serve longer than 3 years. More recently, various U.S. states have introduced term limits on state legislatures and governors. Similarly, in developing countries such as Colombia, the Philippines and Venezuela, constitutional reforms have been passed in order to modify (or remove) term-limitations on the president and other elected officials.

In the academic literature, the discussion for or against term limits has usually centered around two main arguments: increasing office rotation by eliminating incumbency advantage and removing long-tenure incumbents from office.

A large body of theoretical literature emphasizes the barriers to entry created by incumbency advantage. Incumbents control the institutions that determine the rules of political competition (such as redistricting) and tend to spend more money on campaigning than challengers (Abramowitz, 1991). Similarly, Lott (1986) develops a model wherein investments in a political brand name are non-transferable constituting past campaign expenditures as a barrier to the entry of new challengers. Other scholars argue that incumbency advantage mutes the beneficial effect of competitive elections, allows incumbents to disregard the interests of the electorate, and prevents the entry of potentially more productive politicians. Term limits eliminate incumbency advantage periodically, possibly increasing the number of open seats for new politicians from different parties, coalitions, or political sectors who are unlikely to enter office in races with an incumbent. This will increase rotation in power and could potentially eliminate the biases of policy in favor of the coalitions that long-serving incumbents represent (Tabarrok, 1996 and Cain, Hanley and Kousser, 2001). Rotation in office is particularly important in the context of risk-averse voters with very heterogenous preferences who would benefit from term limits that prevent the entrenchment of an opposing group in power for a long time (Glaeser,

[2] See Benjamin and Malbin (1992), p.20-21.

1997 and Tabarrok, 1996).

A second strand of literature emphasizes the importance of term limits for removing long-tenured incumbents and eliminating the incentives of politicians to choose policies that may be electorally profitable but are socially inefficient. Seniority in Congress for instance, is associated with more important committee assignments, agenda setting power and leadership positions. As a consequence, voters prefer a representative who is relatively senior and can more successfully broker resources and legislation to benefit his own constituents. While voters may benefit from having a different and more productive representative, no single constituency will do it unilaterally because they forfeit relative tenure and net transfers. In this context, Dick and Lott (1993) develop a model in which term limits break this equilibrium and allow voters to choose better candidates by breaking the seniority of all districts simultaneously. Finally, a set of papers argue that term limits allow politicians to focus less on choosing policies that maximize their reelection prospects rather than on policies which "truthfully" reflect their preferences and interests allowing voters to better screen incumbents (Glazer and Wattenberg, 1995 and Smart and Sturm, 2006). Naturally, many of these arguments must be contrasted against the agency literature, most notably Barro (1973), that emphasizes the disciplining role of elections and discusses the opportunistic behavior in which term-limited incumbents engage during their last period, once reelection incentives disappear.

The empirical literature on the consequences of term limits is more scarce and focuses almost exclusively on the United States. Besley and Case (1995) analyze the impact of term limits on policy choices of U.S. governors between 1950 and 1986, finding that term-limited incumbents choose higher taxes and expenditure levels. They view this evidence as consistent with agency models in which incumbents care about their reputation, reducing their efforts to keep taxes and expenditures down once they are unable to run again. Initially, a body of literature used simulation models based on past reelection rates to predict the effect of term limits on the rotation of power and the composition of the legislature. However, Lopez (2003) later highlighted the caveats of these exercises and their failure to contemplate the effects of term limits on the structural parameters that determine reelection rates, an argument in line with the "Lucas Critique." For instance, Fowler (1992) and Grofman and Sutherland (1996) argue that term limits may increase the reelection rates of incumbents because high-quality

challengers postpone running until the seat becomes open by mandatory rotation.

More recently, Cain, Hanley and Kousser (2001) analyze the effect of term limits on the 15 U.S. states that introduced them between 1990 and 2000. They find that while term limits successfully increase the turnover of individual incumbents and the fraction of contested races, they fail to make races more competitive or increase *party* turnover. They also find that seats held by incumbents are less likely to be contested and that incumbents tend to face challengers with less previous political experience.

This paper finds results similar to those of previous work in respect to the effect of term limits on races with incumbents before term limits bind. However, to my knowledge, this is the first paper to explore the countervailing effects resulting from the strategies that politicians may use in order to adapt to term limits and preserve the power of their family. In particular, previous work has not empirically explored the extent to which running for a different office or replacement by relatives can undermine the effectiveness of term limits. This is particularly relevant in the context of dynastic or elite-dominated democracies, where individual or party turnover is not necessarily the relevant measure of interest, but rather the extent to which political institutions can break the monopoly of powerful families and increase the diversity of interests represented.

2.3 Institutional Background and Descriptive Evidence

In this section I provide some details on the changes introduced by the 1987 Constitution that are relevant for the analysis of term limits in the Philippines. A brief description of the historical political background in the Philippines can be found in Querubin (2010). See Lande (1956), Owen (1971), McCoy (1994), Hedman and Sidel (2000), Cullinane (2003) or De Dios (2007) for more lengthy discussions.

Elective offices in the Philippines vary according to the different subnational levels of government. The president, vice-president and 24 senators are elected by the country at large. Thw province is the main sub-national level of government and is equivalent to a U.S. State. In some cases, provinces are split into multiple congressional districts which elect a congressman. The top executive position in the province is the governor followed by a vice-governor and a

provincial board (equivalent of a U.S. state legislature). These positions are elected by the province at-large. The next sub-national level is the city/municipality (equivalent to a U.S. city/town) headed by an elected mayor, vice-mayor and body of councilors. After 1987, cities are entitled to elect at least one congressman to the House of Representatives. Finally, municipalities and cities are subdivided into barangays (equivalent to a U.S. ward) which also elect a barangay captain. In this paper, I focus on congressmen and provincial governors, the most important positions elected at a subnational level of government and for which electoral data is available going back to the first election in 1946. There were originally 98 congressional districts in 1946, but this number increased to 219 by 2007 due both to the creation of new cities and provinces and to the redistricting introduced by the 1987 Constitution. Similarly, the number of provinces (and of governors) in the Philippines increased from 49 in 1946 to 79 in 2010.

From 1946 until the declaration of martial law by Ferdinand Marcos in 1972, congressmen and governors were elected to 4-year terms. The elections for both offices were not held simultaneously; elections for governors took place in the midpoint of congressional terms. Most importantly, elected congressmen and governors were not subject to term limits and could be reelected for an indefinite number of consecutive terms. In 1972, Ferdinand Marcos declared Martial Law and closed Congress, halting regularly scheduled elections until the restoration of democracy in 1987[3]. Upon the return to democracy, President Corazon Aquino appointed a Constitutional Commission to draft a new Constitution to replace the previous one, drafted in 1973 under Marcos' regime. The 1987 Constitution reduced the length of Congressional and Gubernatorial terms and all other local offices from 4 to 3 years. It also mandated that elections for all elective offices should take place simultaneously on the first Monday of May every three years[4]. Most importantly, it introduced term limits for all elective offices. Congressmen, governors and all local politicians could only be elected to the same office for up to three consecutive

[3] Elections for the Batasang Pambansa, the Philippines parliamentary body under Marcos were held in 1978 and 1984. Similarly, a local election for provincial governors and municipality mayors took place in 1980. However, there are no records of the electoral statistics of these elections and they are believed to have been heavily influenced by Marcos' establishment.

[4] Congressional and gubernatorial elections occurred regularly and simultaneously every 3 years starting with the 1992 election. The first election for Congress after the restoration of democracy took place in 1987 while the first gubernatorial election took place in 1988. Hence the first elected cohort of congressmen and governors served for a period longer than 3 years during their first term.

3-year terms[5]. Term-limited incumbents were allowed to run and re-enter the same office after one term and they were not restricted from running for a different office immediately after reaching the term limit in their current office.

Table 1 provides some descriptive statistics on the turnover of incumbents and political competition under the no-term limits environment (1946-1972) and after term limits were in place (1987-2010). An important caveat is that any difference observed before and after 1987 cannot be solely attributed to the introduction of term limits; other details of the political system may have changed. Throughout the rest of the paper, results are reported separately for congressmen (Panel A) and governors (Panel B) to illustrate some important differences. Under term limits, incumbents appear more likely to reach a second and a third consecutive term. Between 1946 and 1972, 45% of first-termers were reelected to a second term and this number increases to 63% under the term limits environment. The difference for governors is even larger as the fraction of freshmen governors reelected to a second term almost doubles from 0.34 to 0.59. A similar phenomenon is observed for the fraction of first-termers that are reelected twice and serve for at least 3 consecutive terms. This fraction is twice as large under the term-limit environment for congressmen and almost four times larger for governors. These numbers also suggest that, conditional on reaching a second term, the fraction of incumbents reelected to a third term in 1987-2010 increases from 0.52 to 0.77 for congressmen and from 0.28 to 0.70 for governors. This suggests that incumbents appear to be *safer* under a term-limit environment. I address this question in more detail in the next section. Naturally, term limits eliminate the possibility of serving a fourth or higher consecutive term; 14% of congressmen were reelected to 4 or more consecutive terms between 1946 and 1962. This fraction fell automatically to zero by mandate[6] after 1987. However, in spite of this, the average maximum number of terms served by incumbent congressmen and governors *increased* after 1987. If the main concern about incumbency advantage is having incumbents in the same office for long spells, then term limits fulfill their goal by eliminating the possibility of serving more than 3 consecutive terms. Nonetheless, the fact that the average number of terms served *increased* after 1987 seems, a priori, counter-intuitive. Again, it should be stressed that these differences cannot be solely

[5] For Presidents and Senators a term-limit of two consecutive 6-year terms was intoduced.

[6] In the case of governors, the fraction of incumbents reaching a fourth or higher term was pretty low even before term-limits were introduced (0.04).

attributed to the introduction of term limits. Changes in incumbency advantage could occur for a variety of reasons including an increase in the penetration of television and other forms of media which give greater exposure to incumbents[7]. It could also be explained by changes in the local government code in 1991 which decentralized the provision of many public goods and granted more power to governors (this however, could not explain the increase in the incumbency advantage of congressmen).

Table 1 provides some additional descriptive statistics on political competition before and after 1987 allowing a comparison of the effects of term limits in the Philippines with those in U.S. State Legislatures, which were explored by Cain, Hanley and Kousser (2001). The fraction of open-seat races increased in the Philippines by about 0.1 for Congress (a similar magnitude to the U.S.) and by only 0.04 in the case of governors (in the latter case the difference is not statistically significant). Interestingly, congressional and gubernatorial races became *less* competitive under the term-limit environment. This effect was particularly strong in incumbent races wherein the margin of victory almost doubled from about 15 to over 30 percentage points. This differs from the evidence for the U.S., where margins of victory remained constant after the introduction of term limits. This evidence is also at odds with the predictions of many proponents of term limits who believe that because open-seat races are more competitive than incumbent races, increasing the fraction of open-seat races should increase the overall level of political competition. In the Philippines however, margins of victory under term limits increased both in open-seat and incumbent races. Finally, rows 10 and 11 in each panel of Table 1 illustrate that the fraction of races that were uncontested (those in which only one candidate runs unchallenged) was practically zero between 1946 and 1972 and increased to almost 5% after 1987. This occurred mostly in races with incumbents in Congress, but was more common, surprisingly, in open-seat races for gubernatorial elections.

The descriptive evidence in Table 1 suggests that term limits may have made incumbents *safer* in the terms *prior* to reaching the term-limit. The larger margins of victory and fraction of uncontested races suggest that this may have occurred through the deterrence of high quality challengers who prefer to wait until incumbents are termed-out rather than risk the possibility

[7] In fact, Gelman and King (1990) and Levitt and Wolfram (1997) also find evidence of an increasing incumbency advantage in U.S. general elections towards the end of the 20th Century.

of losing against an incumbent and hurt their future electoral prospects.

Table 2 presents some descriptive statistics on the number of term-limited incumbents and the strategies used to preserve their political power *after* the term limits bind. The first cohort of incumbents to reach a term limit were those elected to their third consecutive term in the 1995 elections. Column 2 shows that 83 congressmen and 22 provincial governors, corresponding to approximately 40% and 30% respectively of the cohort that first entered office with them in the 1987/1988 elections, became term-limited after the 1995 elections and could not run for reelection in 1998. In subsequent election years, a different set of congressmen and governors became term-limited, usually corresponding to 40-50% of the cohort that entered with them to office 9 years (3 terms) before (column 3). As mentioned above, incumbents often resorted to two main strategies to preserve their power: (1) Have a relative run to take their seat; (2) run for a different office.

As column 4 shows, of the 83 congressmen elected to their third term in 1995, 36 (43%) were replaced by a relative in the following elections in 1998. These included wives, sons, daughters, brothers and cousins many of whom had no previous political experience. The fraction of term-limited incumbents replaced by relatives remained relatively stable in subsequent years and was relatively similar for congressmen and governors (the one exception are the 22 term-limited governors in 1995 when only 5% of them were replaced by a relative in the 1998 elections).

Column 5 shows the fraction of term-limited congressmen (governors) who got elected to the governorship (Congress) or the Senate in the elections immediately after reaching their term limit. This strategy was successful for about 10-20% of term-limited congressmen and for up to 64% percent of governors. In this case, the difference between congressmen and governors is worth discussing in more detail as it will prove important in the subsequent analysis. 51 of the 79 provinces in the Philippines are divided into more than one, and sometimes as many as 6 Congressional districts. This implies that an incumbent governor, upon reaching a term limit, can attempt to run and get elected to Congress in the district that offers the best electoral prospects. Moreover, incumbent governors allocate resources and control patronage in municipalities across all Congressional districts in the province. As such, they have greater exposure than a representative from a single district. Congressmen from multi-district provinces, on the other hand, must compete against each other in a gubernatorial race and must attempt to run

for other offices as well. In the 28 single-district provinces however, the congressman and governor are equally visible, giving a better chance to term-limited congressmen in a gubernatorial race. Also, approximately 43 of the 219 members of Congress represent cities that are not headed by a governor but by a city mayor. Hence, many congressmen run as city mayors (and not as governors) after reaching a term limit. This is a more general limitation of the current data used in this paper. As I only focus on congressmen and governors, the numbers in column 5 of Table 2 greatly *under-estimate* the fraction of term-limited incumbents that get elected to other offices as many of them run for mayor, vice mayor and vice-governor.

Naturally, many term-limited incumbents are both elected to a different office and are replaced by a relative. This was particularly common for governors; almost a third of the incumbents that reached their term limit in 2004, moved to Congress *and* were replaced by a relative in the 2007 elections (column 6). Figures 1-3 provide a sketch of the different combinations of strategies used by term-limited incumbents, using real examples from the Philippines. Figure 1 illustrates the case of *benchwarmers*, which consists of term-limited incumbents replaced by a relative for only one term, after which they can run again and serve, potentially, for another three consecutive terms[8]. This was the case for the 2nd Congressional District of Cebu City where, upon serving for three consecutive terms (1988-1998), Cong. Antonio Cuenco had to leave office and was replaced by his wife Nancy in the 1998 elections. In this example, his wife did not continue a political career and left office in 2001 when Antonio Cuenco could run again and regain his seat. Antonio served for another period of 9 consecutive years.

Most common, however, are those who enter politics to replace a term-limited relative and start a political career of their own, expanding the political power of the family. An example, based on the province of Camiguin, is illustrated in Figure 2. After serving for three-consecutive terms in Congress, Pedro Romualdo could not run for reelection in 1998 and decided to run for provincial governor. His seat in Congress was taken by his son Jurdin Romualdo who won the 1998 congressional race by a vote margin of over 20 percentage points. As a consequence, the Romualdo family controlled both Congress and the governorship. In 2007, both Pedro and Jurdin reached their term-limit and could not run for reelection. This however, was no problem for the Romualdos; Jurdin ran for provincial governor, taking his father's seat and Pedro went

[8] See Coronel et.al. (2007) for a journalistic description of the use of benchwarmers by term-limited incumbents.

back to Congress. Term limits did not succeed at breaking the Romualdos' control over politics in Camiguin.

A final example is illustrated in Figure 3. In the province of Bukidnon, Jose Zubiri Jr. served in Congress between 1988 and 1998. Upon reaching his term limit, his son Juan Zubiri took his seat in Congress. Jose succesfully ran for governor in the 2001 election. After his victory, two members of the Zubiri family were in power in Bukidnon. In 2007, Juan reached his term-limit in Congress. However, unlike the Romualdo family (illustrated in Figure 2), Juan did not switch offices with his father. Instead, his seat in Congress was taken by his brother Jose Zubiri III and Juan became a Senator[9]. With three members of the Zubiri family involved in politics, the family had managed to increase its sphere of influence despite term limits. Moreover, these examples in Figures 2 and 3 illustrate that the response and adaptation of dynasties to term limits may enhance the political power of these families as their scope of influence increases both in terms of the number of family members involved and in the number of elective offices controlled.

The examples illustrated in Figures 1-3 are not atypical. In fact, one family remained in power for at least 19 years during 1987-2010 in almost 50 Congressional districts. In the next section, I systematically explore the extent to which these strategies counteract the direct effect of term limits on incumbents by reducing the effectiveness of term limits on the rotation in power of *families*.

2.4 Results

In this section, I explore some of the patterns suggested by the descriptive statistics in Tables 1 and 2 in greater detail. First, I explore the extent to which incumbents become stronger in their first two terms under the term limits environment. Next, I establish whether term limits effectively break dynastic persistence in Philippine politics and increase the turnover of families in office.

[9] Upon reaching the term-limit in 2010, Jose Zubiri Jr. ran for the vice-vovernorship of the Province and won by a large margin.

2.4.1 Effect on Incumbents *Before* Term Limits Bind

As discussed earlier in the introduction, incumbency advantage may induce a strategic response by challengers when term limits are introduced. Under a term-limit environment, high quality challengers may prefer to wait for the incumbent to be termed-out and run in an open-seat race when their probability of winning is much higher. This should be particularly strong during the period when incumbents are running for reelection in their second term, because challengers only need to wait one additional term before the incumbent is termed out. As a consequence, incumbents face weaker competitors in their first two terms and incumbency advantage *increases* under the term-limit environment.

The first exercise I use to explore these potential effects, involves looking at changes in incumbency advantage before (1946-1972) and after (1987-2010) term limits began. While the differences across these time periods may be explained by other factors I provide evidence suggesting that such differences are consistent with the strategic response of challengers to term limits. Estimating incumbency advantage is subject to various methodological challenges. The electoral advantage enjoyed by incumbents confounds the higher quality of incumbents vis-a-vis other candidates, the deterrence of high quality challengers and the benefits that an incumbent derives from office (media exposure, targetted transfers, etc)[10]. Given that estimating incumbency advantage is not the main objective of this paper, I explore the trends in the electoral performance of incumbents in the most simple way by comparing their vote share against that of non-incumbent candidates. I do this by running a regression of the form:

$$Vote\_Share_{ijt} = \alpha + \beta Incumbent_{ijt} + \lambda(Incumbent_{ijt} * Post1987) + \phi_j + \delta_t + \varepsilon_{ijt} \quad (2.1)$$

where $Vote\_Share_{ijt}$ is the share of the votes obtained by candidate i from province/district j in the elections taking place in year t. $Incumbent_{ijt}$ is a dummy variable that takes a value of 1 if candidate i is an incumbent and zero otherwise and ϕ_j and δ_t correspond to a set of province/district and year fixed effects respectively. Finally, ε_{ijt} is an error term capturing all

[10]See Erikson (1971), Gelman and King (1990), Levitt and Wolfram (1997) and Ansolabehere and Snyder (2004) for a dicussion of the methodological challenges associated to estimating incumbency advantage.

omitted factors. The coefficient β captures the electoral advantage of incumbents in the 1946-1972 period while $\beta + \lambda$ provides the measure for the 1987-2010 period. The OLS estimates of equation (2.1), reported in Table 3, are for descriptive purposes and only attempt to compute the change in the average electoral advantage of incumbents after 1987 once provincial and time effects are partialled out. Given that the vote share is only observed for incumbents who decide to run for reelection there is an obvious selection issue and β and λ partly confound the effect of higher quality with the actual electoral advantage conferred by incumbency status. Columns 1 and 2 report results for Congress while columns 3 and 4 report results for governors. The results provide evidence of a substantial electoral advantage of incumbents. Prior to 1972, incumbent congressmen obtained a vote share 28 percentage points larger than other candidates. Most importantly, this electoral advantage became substantially larger after 1987 once term limits were in place; incumbent congressmen between 1987 and 2010 obtained a vote share almost 40 percentage points larger than other candidates. The magnitudes are similar for incumbent governors who exhibit an electoral advantage of almost 35 percentage points after 1987, an advantage substantially larger than the one observed prior to 1972. In Querubin (2010) I provide evidence that incumbents are more likely to be members of political dynasties than other candidates. Furthermore, dynastic candidates exhibit a large electoral advantage. Hence, in columns 2 and 4, I include a dummy for whether the candidate is dynastic in order to disentangle the incumbency effect from that of being dynastic. Candidates are classified as dynastic if they had a relative serving in Congress or as governor in the 20 years prior to the election[11]. Including this dummy does not significantly affect the estimated coefficients on the incumbency variables.

Moreover as discussed in the previous section, the larger vote share obtained by incumbents in their reelection attempts after 1987 has translated into a larger probability of *winning* the election (that is, the larger vote share has mattered). As the first two rows of Table 1 show, the probability of reelection for incumbent congressmen increased after 1987 by 17 percentage points for those in their first term and by almost 25 percentage points for incumbents in their second term. A similar pattern is observed for incumbent governors; the probability of reelection

[11] Relatives are traced by a match within the province of the family name on the mother, father and/or husband side. See Querubin (2010) for more details.

after 1987 increases by 25 percentage points for those in their first term and by almost 42 percentage points for those in their second term. One possibility is that this result is driven by changes in the strategic decision of incumbents regarding whether or not to run for reelection. If incumbents are better able to assess their electoral prospects after 1987, then one may only observe potentially successful incumbents running for reelection and this would naturally explain the larger reelection rates and incumbency advantage in this period. However, the fourth row of Table 1 suggests that this is not the case as the change in the probability of running for reelection for incumbents in their first or second term is not statistically significant.

The evidence presented so far provides convincing evidence that incumbents after 1987 exhibit an increase in their electoral advantage and probability of reelection. While this may be caused by various factors which changed after 1987, the fact that the increase in the probability of reelection after 1987 was particularly pronounced for incumbents in their second term supports the challenger-deterrence hypothesis stated above. High quality challengers should be particularly averse to challenge incumbents in their second term because they only need to wait for one term before the seat becomes open. Additional evidence for this intepretation is given by the *junior surge* defined as

$$Junior\_Surge_i = Vote\_Share_{i,2} - Vote\_Share_{i,1}$$

where $Vote\_Share_{i,2}$ is the vote share of incumbent i in the second reelection attempt and $Vote\_Share_{i,1}$ is the vote share in the first reelection attempt[12]. Evidence of a positive junior surge will likely reflect deterrence of high quality challengers by second-term incumbents running for reelection. The average junior surge during 1946-1972 and after 1987 is reported in the fifth row of Panels A and B of Table 1. There is evidence of a *negative* junior surge of approximately 4 percentage points prior to 1972. However, the junior surge becomes *positive* (and statitistically significant) after 1987 for both congressmen and governors. This increase of approximately 5 percentage points in the vote share of second term reelectionist incumbents relative to the vote share in their first reelection bid is consistent with the deterrence of high-quality challengers

[12]Mean reversion is less of a concern for the junior surge relative to other measures such as the *sophomore surge*. Given that the conditional probability of reelection is so large in the Philippines (close to 90%) it does not take an unusually successful run in order to win a reelectionist bid.

and provides further evidence on the role of term limits behind this phenomenon.

Finally, one would like to establish whether candidates who challenge reelectionist incumbents are of relatively lower quality compared to those who run in open-seat races. Measuring challenger quality is not an easy task as many of these candidates only run once for office and dissappear from the political scene. Moreover, it is often hard to compile data on personal characteristics of losing candidates that would allow me to proxy for their quality. In Querubin (2010) I provide evidence that dynastic candidates tend to be stronger than non-dynastic candidates and hence this can be useful in establishing whether incumbents are less likely to face strong challengers after 1987. The bottom two rows of Table 1 look indirectly at this issue by reporting the fraction of opponents that were dynastic in races with and without incumbents before and after 1987. Interestingly, evidence for congressmen and governors suggests a substantial (and statistically significant) increase in the fraction of high-quality (dynastic) opponents in open-seat races but not in races where an incumbent is running for reelection. This is consistent with the idea of term limits providing incentives for strong candidates (in this case, dynastic) to wait until an incumbent is termed-out and run in an open-seat race.

The evidence presented in this section shows that under the term limits environment between 1987-2010 incumbency advantage increased. Incumbents in their first and second terms (prior to reaching their term limit) were more likely to be reelected and reach a third consecutive term. While this could be explained by other factors that changed after 1987, the evidence of a positive junior surge only after 1987 as well as the lower opposition by dynastic candidates faced by incumbents during this period suggests that the increase in the incumbency advantage may have been caused by the strategic decision of challengers who prefer to wait for the incumbents to be termed-out and hence give them an "easy ride" in their first two terms. This may seem puzzling given that the ultimate goal of term limits is to mitigate the incumbency advantage. It is likely that in the absence of term limits, the turnover of incumbents would have been *higher* for those in their first and second term.

2.4.2 Effect on Incumbents and their Families *After* Term Limits Bind

In this section, I explore the effect of term limits on the persistence in power of term-limited incumbents and their families. By mandate, term-limited incumbents cannot continue in the

same office immediately after their term limit binds. However, the anecdotal evidence provided in section 3 suggests that incumbency advantage may spill over to their family members, or they may even carry it with them to races for other offices. First, I provide descriptive evidence of these spillovers in incumbency advantage. Then, I explore the extent to which countervailing effects undermine the effectiveness of term limits.

Incumbency Advantage Spillovers Across Offices and Relatives

In order to analyze the extent to which incumbent *governors* enjoy an electoral advantage when running for *Congress* I estimate a regression of the form:

$$\begin{aligned} Vote\_Share_{ijt} &= \alpha + \beta Incumbent\_Governor_{ijt} \\ &\quad + \lambda(Incumbent\_Governor_{ijt} * Post1987) + \phi_j + \delta_t + \varepsilon_{ijt} \end{aligned} \tag{2.2}$$

where $Vote\_Share_{ijt}$ is the vote share of candidate i, from district j who is running in the congressional election at time t. $Incumbent\_Governor_{ijt}$ is a dummy that takes a value of one if candidate i is an incumbent governor in province j at time t and zero otherwise. *Post1987* is a dummy that takes a value of one in all years after 1987 and ϕ_j and δ_t are a set of province and time fixed effects, respectively. β corresponds to the electoral advantage of incumbent governors in congressional elections during 1946-1972 while $\beta + \lambda$ gives the corresponding estimate for the 1987-2010 period. Again, equation (2.2) is estimated for descriptive purposes only and is not meant to capture the causal effect of cross-office incumbency status. In particular, $Vote\_Share_{ijt}$ is only observed for incumbent governors who run for Congress and hence selection issues may lead to biased estimates of actual incumbency advantage. Nonetheless, equation (2.2) is informative on the relative trend of the electoral success across offices of incumbent governors before and after 1987, once province and year fixed effects are partialled out.

The OLS estimates of equation (2.2) are reported in columns 1 and 2, Panel A of Table 4. The estimates in column 1 suggest that incumbent governors obtained a vote share that was 10 percentage points larger than that of other congressional candidates during 1946-1972. This

electoral advantage became twice as large in the post-1987 period when incumbent governors obtained almost 21 percentage points more than other candidates. Moreover, the inclusion of dynastic and incumbent congressmen dummies in column 2, suggest that cross-office incumbency advantage is half the size the advantage incumbents enjoy in their own office.

A similar analysis for the incumbency advantage of incumbent congressmen in gubernatorial races can be done by estimating a regression of the form:

$$\begin{aligned} Vote\_Share_{ijt} &= \alpha + \beta Incumbent\_Congress_{ijt} \\ &\quad + \lambda(Incumbent\_Congress_{ijt} * Post1987) + \phi_j + \delta_t + \varepsilon_{ijt} \end{aligned} \tag{2.3}$$

where the different variables are equivalent to those in (2.2) only that $Vote\_Share_{ijt}$ now corresponds to the vote share of candidate i in gubernatorial race at time t and $Incumbent\_Congress_{ijt}$ is a dummy for whether candidate i is an incumbent congressman in province j at time t. The OLS estimates of (2.3) are reported in columns 1 and 2 of Panel B in Table 4. The results are very similar to those found for incumbent governors in congressional races: incumbent congressmen received a vote share that was 8 percentage points larger than that of other candidates during 1946 and 1972 and this advantage increased to 18 percentage points after 1987 (column 1).

Next I explore the existence of spillovers of incumbency advantage to the incumbent's relatives by estimating a regression of the form:

$$\begin{aligned} Vote\_Share_{ijt} &= \alpha + \beta Incumbent\_Relative_{ijt} \\ &\quad + \lambda(Incumbent\_Relative_{ijt} * Post1987) + \phi_j + \delta_t + \varepsilon_{ijt} \end{aligned} \tag{2.4}$$

where all variables are as defined above and $Incumbent\_Relative_{ijt}$ is a dummy that takes a value of one if candidate i is a relative of time $t's$ incumbent and zero otherwise. Again, regression (2.4) is estimated for descriptive purposes only. A more careful analysis of the *causal* effect of previous relatives in office on electoral performance is provided in Querubin (2010). The OLS estimates of (2.4) are reported in columns 3 and 4 of Table 4. The results

for congressmen in Panel A suggest that relatives of an incumbent obtain a vote share that is 13 percentage points larger than that of other candidates and this advantage has remained relatively constant before and after 1987 (column 3). However, the results for governors in Panel B suggest a larger electoral advantage for relatives of the incumbent governor (20 percentage points) only in the post-1987 period. In order to establish whether family links to the current incumbent give any additional advantage beyond the one enjoyed by other dynastic candidates or incumbents, column 4 controls directly for these effects. In this case, the electoral advantage of an incumbent's relative corresponds to the sum of the coefficient on the *Dynastic* and *Incumbent_Relative* dummies. The results suggest that relatives of incumbent congressmen receive a vote share that is 11 percentage points larger than that of other dynastic candidates and 18 percentage points larger than that of other non-dynastic candidates during 1946-1972. This advantage increased by about 6 percentage points during 1987-2010. The evidence for governors in column 4 of panel B reveals an electoral advantage of about 3 percentage points for relatives of the incumbent over non-dynastic candidates during 1946-1972. This advantage however, increases substantially after 1987.

The evidence reported in Table 4 suggests that incumbents may be able to extend their electoral advantage to their relatives and other offices. Moreover, this advantage has been substantially larger after 1987, under a term limits environment, precisely when it is particularly important for incumbents to devise strategies to maintain their power once term limits bind.

The Effect of Term Limits on the Continuation of Incumbents and their Families

Establishing the effect of term limits on the continuation in power of incumbents and their families is not trivial because the sample of incumbents who serve for three consecutive terms and reach a term limit is not random. The hypothetical counterfactual of interest in this setting is: what would have been the probability of the term-limited incumbents or their families remaining in power had they not been subject to a term limit? In order to address this question one needs to define an appropriate control group. Incumbents who reach a term-limit have been successful at winning three consecutive elections which suggests they are of relatively high quality. In order to isolate the effect of term limits, the control group should consist of a sample of incumbents with similar quality but who are not subject to term limits. The sample

of incumbents in their second term seems like the best possible control group in this context; these incumbents have been elected to office twice (which reflects that they are also of relatively high quality) but aren't restricted in their possibility to run for reelection. Moreover, one can take advantage of the fact that during the 1946-1972 period term limits were not yet in place and use this period as a "pre-treatment" period. This allows me to set up this problem as a standard difference-in-difference analysis where the "treated" group corresponds to incumbents in their third term, the "control" group corresponds to incumbents in their second term, the "pre-treatment" period is 1946-1972 and the "treatment" period is 1987-2010.

The regression associated with the above empirical set-up takes the form:

$$\begin{aligned} y_{ijt} &= \alpha + \beta Term3_{ijt} + \gamma(Post1987 * Term3_{ijt}) + \delta_j + \phi_t + \varepsilon_{ijt} \\ \forall\, i &: \{Term_{ijt} = 2 \vee Term_{ijt} = 3\} \end{aligned} \tag{2.5}$$

where y_{ijt} is a dummy that takes a value of one if incumbent (or its family) i, from province j at time t, remains in power in the next electoral term. The exact definition of y_{ijt} will become more precise later on and will vary depending on whether I study the effect of term limits on individual incumbents or on the incumbent's family. $Term3_{ijt}$ is a dummy that takes a value of one if incumbent i is serving the third consecutive term at time t and zero if it is in the second term. *Post1987* is a dummy that takes a value of 1 in every year after 1987 and zero otherwise and δ_j and ϕ_t are a set of province and year fixed effects respectively. Finally, ε_{ijt} is an error term that captures all omitted factors.

The magnitude of interest in this setup is γ which measures the differential continuation rates of three-termers before and after 1987, compared to incumbents in their second term. Under certain conditions, γ can be interpreted as the *causal* effect of term limits on the persistence/continuation of an incumbent and its family. The most common assumption, often called the "parallel slopes" assumption, requires that absent term limits, the difference in the continuation or persistence rates between three-termers and two-termers would have remained constant after 1987. This condition often implies that the only difference between three-termers in 1946-1972 and 1987-2010 is that the latter are subject to term limits while the former are

not. However, as Angrist and Pischke (2009) note, a common pitfall in difference-in-difference analysis is that the composition of the treatment and control groups may change as a result of the treatment (in this case, as a consequence of the introduction of term limits). The evidence presented in section 4.1 suggests that this may be a concern for the empirical design described by equation (2.5). Recall that in the post-1987 period, incumbents are more likely to serve for three consecutive terms as incumbents in their first and second term are less likely to face high quality challengers who prefer to wait for them to be termed-out. Had term limits not been in place, some of these incumbents would have faced more serious competitors in their first and second reelection attempts and may not have reached a third term. This implies that the average quality of three-termers during 1987-2010 is lower relative to the average quality of three-termers during 1946-1972. Under these conditions, the coefficient γ will confound the effect of term limits with the lower average quality of three termers after 1987. Because lower quality incumbents are less likely to remain in office, γ will make term limits seem more effective than what they really are (i.e. the bias will make γ more negative than if the quality of three-termers remained constant). This potential bias must be taken into account when interpreting the estimates of γ in (2.5) in the subsequent analysis.

Another potential concern is that given the change in the length of congressional and gubernatorial terms after 1987 from 4 to 3 years, three-termers during 1946-1972 served for 12 years while those after 1987 served for only 9. To address this issue I will perform a robustness check in which I count as "treated" 2-termers during 1946-1972 and 3-termers during 1987-2010. The disadvantage of this approach however, is that first-termers must now be included in the control group.

Persistence of Incumbents in the same office As a benchmark, I will first estimate the direct effect of term limits on the probability of the incumbent remaining in power in the same office. To this end, I estimate (2.5) where the dependent variable y_{ijt} is equal to $Self_{ijt}$, a dummy variable that takes a value of one if incumbent i remains in power in the same office in the next period and zero otherwise. Columns 1-3 of Table 5 report the OLS estimates of γ in equation (2.5). There is an obvious negative and statistically significant effect of term limits on the persistence of incumbent congressmen (columns 1 and 2) and governors (column 3) in

the same office. This is only evidence that term limits have been enforced. While it is hard to interpret the magnitude of the coefficient (partly due to the selection biases discussed above), the estimates in columns 1-3 of Table 5 will be a useful benchmark against which other results can be compared. In particular, subsequent evidence will establish the extent to which the various potential countervailing effects created by the strategies of dynasties in order to remain in power, lead to a reduction of the effect of term limits on the *dynasty*.

Persistence of Incumbents across offices The first important test concerns the effect of term limits once one allows for the possibility of incumbents running and remaining in power in other offices. To explore this, I estimate equation (2.5) where the dependent variable is now $Self\_OthOffice_{ijt}$, a dummy that takes a value of one if the incumbent remains in office the next period, either in Congress, Senate or as provincial governor. The OLS estimates of γ for this analysis are reported in columns 4-6 of Table 5. Once one allows for the possibility of remaining in power in other offices, the coefficient on congressmen falls by about 20%. Also, recall that, as noted in section 3, the top executive position in a city is the mayor and not the governor and hence congressmen representing cities will very rarely run for governor. To address this, I estimate the regressions on congressmen excluding representatives from cities (column 5). This however, has a negligible effect on the estimates.

A more striking result is reported in column 6, which reports the estimate of γ on the sample of governors. Once one allows for the possibility that governors may continue serving in Congress or the Senate, the estimate of γ falls by about 65% and is no longer statistically significant. This is remarkable given that the selection bias on γ, generated by changes in the quality of three-termers, goes in the direction of finding a *stronger negative effect* of term limits on the persistence of incumbents. The difference in the coefficients for congressmen (columns 4 and 5) and governors (column 6) is intuitive and was anticipated in section 3. Recall that provincial governors often have multiple Congressional districts in which they can choose to run should they want to enter Congress, while many congressmen must compete for only one gubernatorial spot. Also, the results reported in columns 4-6 underestimate the extent to which switching offices can reduce the effect of term limits on the persistence of incumbents as many congressmen and governors run for city mayor, vice-mayor and provincial vice-governor that

are not in my dataset. Allowing for this possibility would probably make the estimates of γ in columns 4-6 closer to zero.

Persistence of the Incumbent's Family in the same office. Next I explore the role of relatives and the extent to which they counteract the effect of term limits on the family. I do this by estimating equation (2.5) but using the dependent variable $Self\_Relative_{ijt}$, a dummy that takes a value of one if the incumbent or a relative remains in power *in the same office* in the next term and zero otherwise. In this case, the focus is on whether term limits are effective at removing the incumbent's family (and not just the incumbent) from the same office. The OLS estimates of γ are reported in columns 1-3 of Table 6. Allowing for the possibility that incumbents are replaced by family members causes the estimate of γ to fall by almost 50% relative to the benchmark estimates reported in columns 1-3 of Table 6 (effects on the incumbent). Moreover, the coefficient on governors (column 3) is no longer statistically significant at standard levels. While the precise magnitude of the coefficients is hard to interpret given the selection bias, the estimates in columns 1-3 suggest that the use of relatives allows incumbents to undo almost half of the direct effect of term limits.

As a robustness check, columns 1-3 of Table 7 re-estimate columns 1-3 of Table 6 but compare three-termers in 1987-2010 with two-termers in 1946-1972. That is, they report the estimates of γ from estimating:

$$\begin{aligned} Self\_Relative_{ijt} &= \alpha + \beta Term\_Treated_{ijt} \\ &\quad + \gamma(Post1987 * Term\_Treated_{ijt}) + \delta_j + \phi_t + \varepsilon_{ijt} \\ \forall\, i &: \{Term_{ijt} = 1 \vee Term_{ijt} = 2 \vee Term_{ijt} = 3\} \end{aligned} \tag{2.6}$$

where $Term\_Treated_{ijt}$ takes a value of one if the incumbent is a three-termer serving after 1987 or the incumbent is a two-termer serving between 1946 and 1972 and zero otherwise. The estimates of γ in (2.6) reported in columns 1-3 of Table 7 reveal a similar, though slightly smaller reduction with respect to the benchmark estimates in columns 1-3 of Table 5.

Persistence of the Incumbent's Family across offices Next, I combine the previous two strategies for political survival by allowing for the possibility that the incumbent's family (including the incumbent himself) remains in power in the same or in a different elected office. I estimate equation (2.5) where the dependent variable is now $Self\_Relative\_OthOffice_{ijt}$, a dummy variable that takes a value of 1 if the incumbent or a relative remains in power in the next period either in Congress, the Senate, or the provincial governorship. This essentially tests whether term limits are effective at removing the incumbent *family* from the top elective positions in the Philippines. The results are reported in columns 4-6 of Table 6. Remarkably, the coefficient on the effect of term limits on the persistence of congressmen's families (columns 4 and 5) falls by over 80% relative to the benchmark effect on the individual incumbents and is no longer statistically significant. The results for governors are even stronger; the estimate of γ in column 6 becomes very close to zero and is not statistically significant either. This result suggests that term limits may not effectively increase the turnover of families in Congress and provincial governorships because incumbents successfully adapt by running for other offices and bringing relatives into politics in order to maintain their political power. This is the main result of the paper. Confidence in this result is strengthened because γ is probably biased towards showing that term limits are more effective than they really are. Moreover, just as in Table 5, these estimates underestimate the extent to which running for other offices reduces the effect of term limits because they do not take into account those who become mayors, vice-mayors and vice-governors after becoming term-limited.

A robustness check is reported in columns 4-6 of Table 7 based on estimates of equation (2.6) but using $Self\_Relative\_OthOffice_{ijt}$ as the dependent variable. The result for governors is basically unchanged; the estimate of γ remains very close to zero. The estimates for Congress however, though still almost 50% smaller than the benchmark estimates in Table 5, still suggest a statistically significant effect of term limits. However, this robustness check must be interpreted cautiously as it requires using incumbents in their first term as a control. This latter group may be very different from second and third-termers for reasons other than term limits.

Persistence of Incumbents and their families in the Long Run The results presented so far focus on the effect of term limits on the persistence in power of an incumbent or his

family in the term/period immediately after the third consecutive term, when the incumbent is term-limited and cannot run again in the same office. However, incumbents are allowed to run again and attempt to return to office after "waiting" for one term out of office. This implies that the effect of term limits may be smaller in the long run than in the short run if a large fraction of incumbents manage to return to office at some point in the future after being term-limited. I explore the long run effect of term limits on both incumbents and the incumbent's family. To estimate the effect on the individual incumbents I estimate equation (2.5) using as a dependent variable $Self\_Ever_{ijt}$, a dummy that takes a value of 1 if the incumbent serves again in Congress, the Senate, or the provincial governorship at any point in the future (after time t), and zero otherwise. The results are reported in columns 1-3 of Table 8. Columns 1 and 2 report the estimates for congressmen and show that the long run effects are about one third smaller than the short run effects reported in columns 4-5 of Table 5. However, the estimates of γ are still statistically significant, which suggests that term limits may be an effective way to end the political career of some individual incumbents (even though the estimated effect is probably smaller in absolute value due to the selection bias). It is important to keep in mind, however, that these estimates may over-estimate the long-run effectiveness of term limits as the analysis only tracks whether incumbents had returned to power by 2007 (when the latter elections in my sample took place). Some incumbents that became term-limited during 1995-2004 may return to politics after 2007, but this is not captured in my measure. The estimate of γ for governors reported in column 3 also suggests that the long run effect of term limits is about one third smaller than the long-run effect and is not statistically significant.

Perhaps the most important question given the prevalence of political dynasties in the Philippines, is whether term limits effectively remove the incumbent's *family* from office in the long run. I address this question by estimating equation (2.5) but using as a dependent variable $Self\_Relative\_Ever_{ijt}$, a dummy variable that takes a value of one if the incumbent *or a relative* serve in Congress, the Senate or the provincial governorship at any point in the future (after time t), and zero otherwise. The OLS estimates of γ are reported in columns 4-6 of Table 8 and suggest that term limits do not effectively remove an incumbent's *family* from office. The point estimates for both congressmen and governors are very close to zero and are not statistically significant. This further reinforces the main result of the paper: while term

limits may effectively remove individual incumbents from office, the important role of relatives in Philippine politics allows incumbents to maintain the political power of the family both in the short and the long run.

Term Limits and the persistence of dynastic politicians The final question I address in the paper is whether term limits are capable of changing the *type* of politician that gets elected to office. In Querubin (2010) I discuss the prevalence of dynastic politicians in Philippine politics and the potential negative effect that this has on the political system. It is important to establish whether the open seat races created by term limits allow new candidates without any family ties to politics to access elected office. To do this I estimate equation (2.5) using the dependent variable $Rep\_Dynastic_{ijt}$, a dummy variable that takes a value of one if a dynastic incumbent remains in the same office in the term immediately after time t and zero otherwise. The OLS estimates of γ for this analysis are reported in Table 9. The point estimate for governors in column 3 is practically equal to zero which suggests that term limits are not successful at breaking the dynastic pattern in Philippine politics. The results for congressmen in columns 1-2 are even stronger and suggest, if anything, a *positive* effect of term limits on the likelihood of having a dynastic incumbent in office. Most of this effect is naturally driven by the fact that some term-limited incumbents are replaced by their relatives (which are by definition dynastic). Hence, large cohorts of dynastic incumbents enter office after 1998 when the first cohort of incumbents became term limited. However, this positive effect also captures the fact that open-seat races following a term-limited incumbent are often won by members of other established dynasties not necessarily related to the previous incumbent. In sum, term limits have not changed the dynastic nature of politics in the Philippines and has, if anything, exacerbated it by providing incentives for incumbents to use their relatives as a "survival strategy" when term limits bind.

2.5 Conclusions

The evidence provided in this paper suggests that term limits do not effectively increase the turnover of incumbent *families* in Congress and Provincial governorships in the Philippines.

This is not very encouraging in the context of an elite dominated democracy such as the Philippines, where the family constitutes the most important unit of social and political organization. Nonetheless, the empirical evidence in section 4 suggests that term limits may have been partially effective at increasing the turnover of individual incumbents; often, older generations retire as a consequence of term limits, giving way to younger members of their families who enter politics to replace them and start their own political careers. This generational shift may change the stance in Congress with respect to certain social policies, but is unlikely to change the fundamental interests represented in the democratic system. This is ultimately what term limits pursue. The impact on the average quality of politicians is also uncertain. Larger incumbency advantages make it easier for an incumbent to remain in power for 9 consecutive years. Some of these incumbents (particularly the least able) might not have retained power for such a long period if term limits had not been in place. Instead, they would have faced stronger competitors in earlier terms. Similarly, relatives of term-limited incumbents may have less political experience than their predecessors which could potentially hurt the provision of public goods and other policies.

The result that term limits have not been effective (and may have exacerbated) the dynastic nature of Philippine politics should not be surprising. This particular institution does not affect in any sense the *fundamental* sources of political power of dynasties which include their control over land, employment and violence in their respective provinces. This is a more general concern about other types of political reform. Reforms that do not alter the underlying distribution of political power will not succeed in substantively changing the political equilibrium because incumbents will adapt and remain powerful under the new set of institutions (Acemoglu, Johnson and Robinson, 2005 and Acemoglu and Robinson 2008 amongst others). The dynastic politicians who drafted the 1987 Constitution probably understood this and anticipated their ability to adapt to the term limits that they themselves introduced.

This paper motivates some additional questions to be addressed by future research. On the methodological side, a more structural approach which incorporates the underlying quality of incumbents and their challengers will be very useful in order to more precisely estimate the effect of term limits and eliminate the potential selection bias that contaminated some of my results. Alternatively, one can collect additional information on the candidates such as their

previous political experience in order to control directly for potential measures of their quality.

Most importantly, future research should try to establish the effect that the generational shift in politics, induced by term limits, has had on legislation and other type of policies and economic outcomes.

Table 1

Descriptive Statistics (Before and After Term-Limits)

Variable	No Term-Limits Environment (1946-1972)	Term-Limits Environment (1988-2010)	T Test (p-value)
A. Congress			
Fraction of freshmen who reach at least a 2nd term	0.458	0.633	0.00
Fraction of freshmen who reach at least a 3rd term	0.238	0.484	0.00
Fraction of freshmen who reach a term>3	0.140	0.000	0.00
Fraction of incumbents in their 1st or 2nd term who run for reelection	0.793	0.824	0.15
Junior Surge	-0.038	0.038	0.00
Average Number of Terms Served	1.698	1.912	0.00
Fraction of Races without Incumbent (Open Seat)	0.324	0.421	0.00
Margin of Victory (Open Seat Races)	0.158	0.196	0.02
Margin of Victory (Races with Incumbents)	0.161	0.369	0.00
Fraction of Open Seat Races Uncontested	0.000	0.015	0.06
Fraction of Races with Incumbent Uncontested	0.000	0.066	0.00
Fraction of Opponents that are Dynastic (Open Seat Races)	0.176	0.255	0.00
Fraction of Opponents that are Dynastic (Races with Incumbents)	0.150	0.147	0.85
B. Governors			
Fraction of freshmen who reach at least a 2nd term	0.342	0.590	0.00
Fraction of freshmen who reach at least a 3rd term	0.096	0.412	0.00
Fraction of freshmen who reach a term>3	0.038	0.000	0.01
Fraction of incumbents in their 1st or 2nd term who run for reelection	0.806	0.839	0.27
Junior Surge	-0.042	0.050	0.00
Average Number of Terms Served	1.405	1.810	0.00
Fraction of Races without Incumbent (Open Seat)	0.361	0.397	0.26
Margin of Victory (Open Seat Races)	0.155	0.198	0.04
Margin of Victory (Races with Incumbents)	0.174	0.292	0.00
Fraction of Open Seat Races Uncontested	0.000	0.052	0.01
Fraction of Races with Incumbent Uncontested	0.012	0.019	0.50
Fraction of Opponents that are Dynastic (Open Seat Races)	0.197	0.332	0.00
Fraction of Opponents that are Dynastic (Races with Incumbents)	0.159	0.200	0.12

Junior surge is defined as the difference of the vote share obtained by incumbents in their second and first reelection attempt. Open Seat races refer to races in which the current incumbent is not running for reelection. Fraction of opponents that are dynastic refers to the fraction of candidates (excluding the incumbent in races with incumbent) that had a relative in office in the 20 years prior to the election.

Table 2

Term-Limited Congressmen and Governors and Survival Strategies

A. Congressmen

Election Year	Term Limited	As % of those who Entered with them in Term 1	% Replaced by Relative	% Moved to Governorship or Senate	% Replaced by Relative AND Moved to Governorship or Senate
1995	83	0.415	0.434	0.084	0.036
1998	49	0.521	0.286	0.245	0.020
2001	23	0.460	0.522	0.087	0.087
2004	63	0.496	0.397	0.190	0.063
2007	62	0.574			
Total (1995-2007)	*280*	*0.491*	*0.311*	*0.118*	*0.036*

B. Governors

Election Year	Term Limited	As % of those who Entered with them in Term 1	% Replaced by Relative	% Moved to Congress or Senate	% Replaced by Relative AND Moved to Congress or Senate
1995	22	0.301	0.045	0.409	0.045
1998	19	0.432	0.263	0.158	0.000
2001	11	0.423	0.455	0.636	0.273
2004	21	0.525	0.476	0.476	0.333
2007	18	0.419			
Total (1995-2007)	*91*	*0.418*	*0.231*	*0.319*	*0.121*

Term-limited refers to incumbents who started their third consecutive term in the respective election year and could not run for reelection in the same office in the following election.

Table 3
Incumbency Advantage before and after term limits

	Dependent Variable is Vote Share			
	Congress		Governors	
	(1)	(2)	(3)	(4)
Incumbent Dummy	0.276	0.265	0.194	0.188
	(0.009)	(0.009)	(0.013)	(0.013)
Incumbent*Post 1987	0.130	0.118	0.155	0.142
	(0.013)	(0.013)	(0.019)	(0.019)
Dynastic Dummy		0.099		0.063
		(0.010)		(0.018)
Dynastic Dummy*Post 1987		0.029		0.071
		(0.013)		(0.022)
Observations	8377	8377	3058	3058
R-squared	0.411	0.443	0.324	0.360

Robust Standard Errors, clustered at the candidate level are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all candidates for Congressional and Gubernatorial elections for the period 1946-2007. Dynastic Dummy takes a value of 1 if the candidate had a relative who served as Congressman or Governor in the 20 years prior to the election. Incumbent Dummy takes a value of 1 if the candidate is the current incumbent seeking reelection.

Table 4

Electoral Advantage of Incumbents in Other Office and Incumbent Realtives

	Panel A: Congress			
	Dependent Variable is Vote Share			
	(1)	(2)	(3)	(4)
Incumbent Governor	0.105	0.161		
	(0.029)	(0.029)		
Post-1987*Incumbent Governor	0.119	0.136		
	(0.036)	(0.036)		
Incumbent Relative			0.128	0.109
			(0.025)	(0.027)
Post-1987*Incumbent Relative			0.026	0.063
			(0.030)	(0.032)
Dynastic		0.101		0.087
		(0.010)		(0.010)
Incumbent		0.273		0.275
		(0.009)		(0.009)
Post-1987*Incumbent		0.120		0.132
		(0.013)		(0.013)
Post-1987*Dynastic		0.023		-0.002
		(0.012)		(0.013)
Observations	8377	8377	8377	8377
R-squared	0.103	0.435	0.109	0.435
	Panel B: Governors			
Incumbent Congressman	0.084	0.112		
	(0.025)	(0.024)		
Post-1987*Incumbent Congressman	0.097	0.131		
	(0.032)	(0.032)		
Incumbent Relative			-0.028	-0.030
			(0.073)	(0.076)
Post-1987*Incumbent Relative			0.209	0.203
			(0.077)	(0.081)
Dynastic		0.063		0.065
		(0.018)		(0.018)
Incumbent		0.192		0.188
		(0.013)		(0.013)
Post-1987*Incumbent		0.159		0.155
		(0.019)		(0.019)
Post-1987*Dynastic		0.061		0.042
		(0.022)		(0.022)
Observations	3058	3058	3058	3058
R-squared	0.125	0.395	0.118	0.370

Robust Standard Errors, clustered at the candidate level are reported in parentheses. Sample includes all candidates for Congressional and Gubernatorial elections for the period 1946-2007. Dynastic Dummy takes a value of 1 if the candidate had a relative who served as Congressman or Governor in the 20 years prior to the election. Incumbent takes a value of 1 if the candidate is the current incumbent in that office seeking reelection. Incumbent Relative is a dummy that takes a value of one if the candidate is related to the current incumbent.

Table 5

Difference-in-Difference Regressions for whether the incumbent remains in office.

	Dependent Variable is Self			Dependent Variable is Self_OthOffice		
	Congress	Congress (Excluding Cities)	Governors	Congress	Congress (Excluding Cities)	Governors
	(1)	(2)	(3)	(4)	(5)	(6)
Post-1987*Term=3	-0.561	-0.559	-0.637	-0.466	-0.446	-0.229
	(0.091)	(0.092)	(0.193)	(0.093)	(0.096)	(0.198)
Observations	789	685	272	789	685	272
R-squared	0.758	0.749	0.609	0.675	0.668	0.439

Robust Standard Errors are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all incumbent Congressmen and Governors in their 2nd and 3rd term in the period 1946-2007. The dependent variable in columns 1-3 is a dummy that takes a value of one if the incumbent remains in power in the same office in the next term. The dependent variable in columns 4-6 is a dummy that takes a value of one if the incumbent remains in power in Congress, Senate or the provincial governorship in the next term.

Table 6

Difference-in-Difference Regressions for whether the Incumbent or it's Family remains in office.

	Dependent Variable is Self_Relative			Dependent Variable is Self_Relative_OthOffice		
	Congress	Congress (Excluding Cities)	Governors	Congress	Congress (Excluding Cities)	Governors
	(1)	(2)	(3)	(4)	(5)	(6)
Post-1987*Term=3	-0.253	-0.223	-0.355	-0.153	-0.103	-0.048
	(0.092)	(0.096)	(0.208)	(0.092)	(0.095)	(0.197)
Observations	789	685	272	789	685	272
R-squared	0.607	0.601	0.497	0.565	0.553	0.446

Robust Standard Errors are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all incumbent Congressmen and Governors in their 2nd and 3rd term in the period 1946-2007. The dependent variable in columns 1-3 is a dummy that takes a value of one if the incumbent or a relative remain in power in the same office in the next term. The dependent variable in columns 4-6 is a dummy that takes a value of one if the incumbent or a relative remain in power in Congress, Senate or the provincial governorship in the next term.

Table 7

Difference-in-Difference Regressions for whether the Incumbent or it's Family remains in office. Using 2-termers as "treated" incumbents in the Pre-1987 period.

	Dependent Variable is Self_Relative			Dependent Variable is Self_Relative_OthOffice		
	Congress	Congress (Excluding Cities)	Governors	Congress	Congress (Excluding Cities)	Governors
	(1)	(2)	(3)	(4)	(5)	(6)
Post-1987*Term-Treated	-0.350	-0.328	-0.286	-0.342	-0.306	-0.038
	(0.064)	(0.067)	(0.101)	(0.064)	(0.067)	(0.100)
Observations	1742	1512	760	1742	1512	760
R-squared	0.339	0.327	0.220	0.305	0.289	0.196

Robust Standard Errors are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all incumbent Congressmen and Governors in their 1st, 2nd and 3rd term in the period 1946-2007. Term-Treated is a dummy variable that takes a value of one if the incumbent is a 2-termer serving between 1946 and 1972 or a 3-termer serving after 1987. The dependent variable in columns 1-3 is a dummy that takes a value of one if the incumbent or a relative remain in power in the same office in the next term. The dependent variable in columns 4-6 is a dummy that takes a value of one if the incumbent or a relative remain in power in Congress, Senate or the provincial governorship in the next term.

Table 8

Difference-in-Difference Regressions for whether the Incumbent or it's Family Continue in Politics in the Future

	Dependent Variable is Self_Ever			Dependent Variable is Self_Relative_Ever		
	Congress	Congress (Excluding Cities)	Governors	Congress	Congress (Excluding Cities)	Governors
	(1)	(2)	(3)	(4)	(5)	(6)
Post-1987*Term=3	-0.319	-0.321	-0.198	0.011	0.017	-0.049
	(0.095)	(0.099)	(0.161)	(0.063)	(0.065)	(0.094)
Observations	760	664	280	823	718	301
R-squared	0.542	0.532	0.395	0.391	0.393	0.358

Robust Standard Errors are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all incumbent Congressmen and Governors in their 2nd and 3rd term in the period 1946-2007. The dependent variable in columns 1-3 is a dummy that takes a value of one if the incumbent returns to Congress, Senate or the provincial governorship at any point in the future. The dependent variable in columns 4-6 is a dummy that takes a value of one if the incumbent or a relative serves in Congress, Senate or the provincial governorship at any point in the future.

Table 9
Difference-in-Difference Regressions for whether a Dynastic Politician Remains in Office

	Dependent Variable is Rep_Dynastic		
	Congress	Congress (Excluding Cities)	Governors
	(1)	(2)	(3)
Post-1987*Term=3	0.182	0.198	-0.003
	(0.101)	(0.105)	(0.171)
Observations	789	685	272
R-squared	0.579	0.578	0.462

Robust Standard Errors are reported in parentheses. All regressions include a full set of province/district and year fixed effects. Sample includes all incumbent Congressmen and Governors in their 2nd and 3rd term in the period 1946-2007. The dependent variable in columns 1-3 is a dummy that takes a value of one if a dynastic incumbent is in power in the same office in the next term.

Figure 1
Benchwarmers

Cebu City, 2nd Congressional District

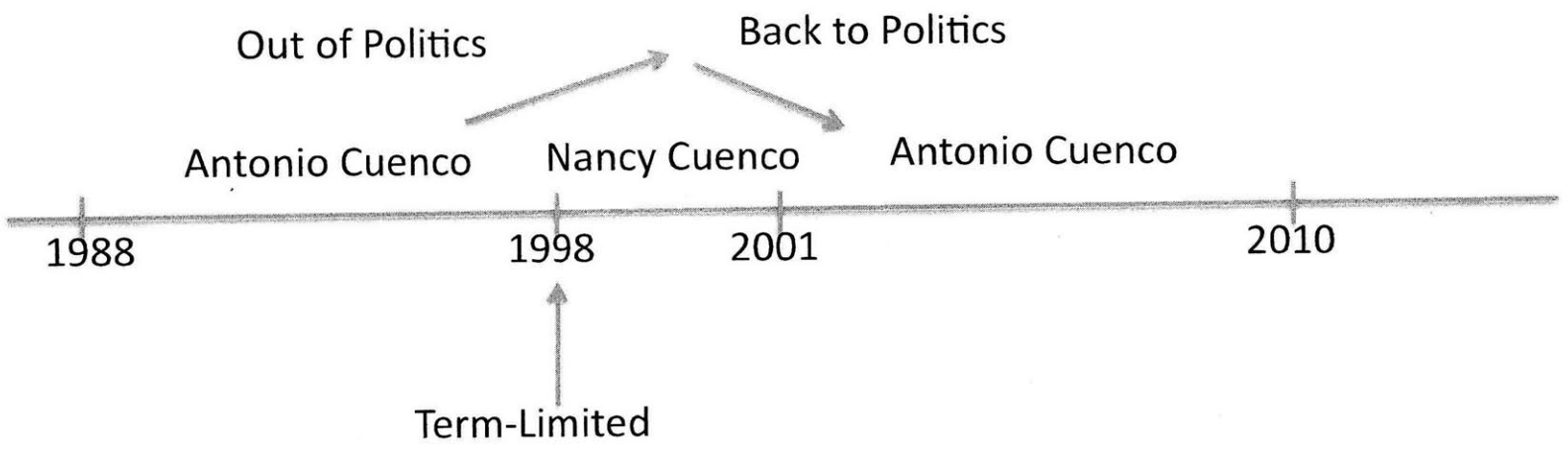
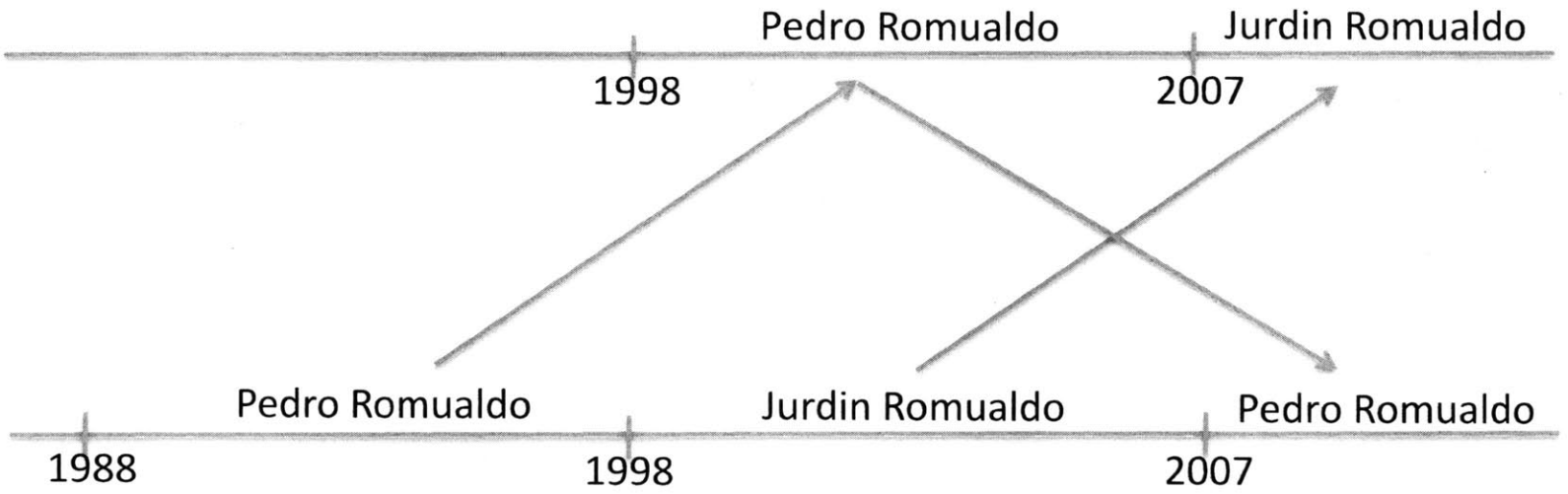


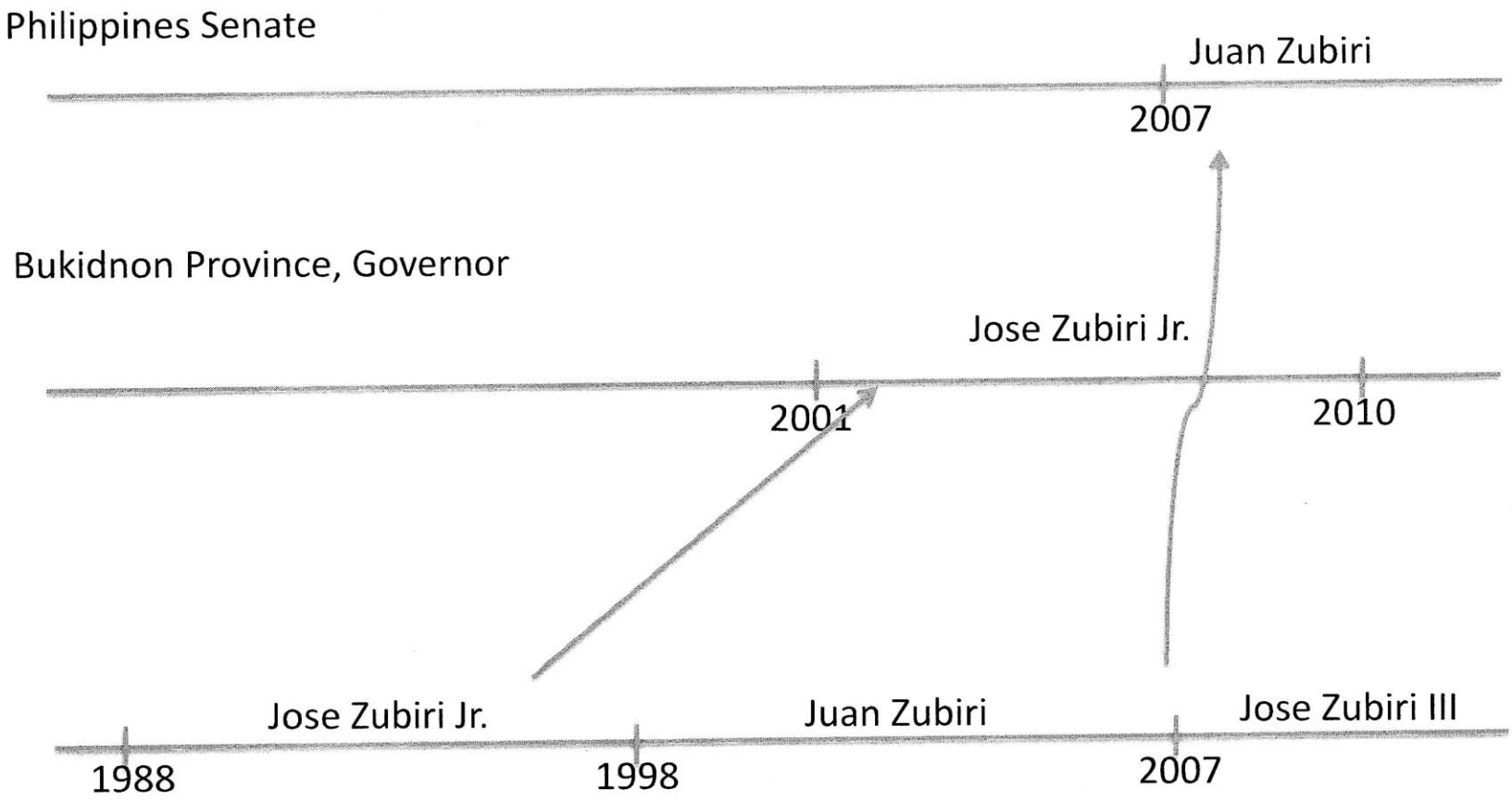
Figure 2
Alternating Offices

Camiguin Province, Governor



Camiguin Province, Lone Congressional District

Figure 3
Expanding Control Across Offices



Bukidnon Province, 3rd Congressional District

Chapter 3

Economic and Political Inequality in Development: The Case of Cundinamarca, Colombia[1]

3.1 Introduction

A large and growing academic literature argues that economic inequality has adverse effects on economic development, for example, because of the effects of imperfect capital markets, through demand externalities, or because of political economy reasons.[2] A recently-emerging consensus, exemplified by Engerman and Sokoloff (1997), maintains that the divergent economic paths of North and South America are a consequence of their different levels of economic inequality. This consensus asserts that the main difference between the two parts of the American continent was the differences in economic inequality that emerged during the colonial period and persisted to

[1] **Joint with Daron Acemoglu, Maria Angelica Bautista and James A. Robinson**

[2] On the effect of inequality because of its interactions with imperfect capital markets see, for example, Banerjee and Newman (1993) or Galor and Zeira (1993). For the impact of inequality through the composition of aggregate demand, see, for example, Murphy, Shleifer and Vishny (1989). More important for the application of these theories to Latin America and for the focus of the present paper are the political economy mechanisms linking inequality to economic development (see, among others, Meltzer and Richard, 1981, Alesina and Rodrik, 1994, Persson and Tabellini, 1994, Benabou, 2000). In addition, some authors emphasize the link between inequality and political instability (Alesina and Perotti, 1996) and on incentives to invest in education (Bourguignon and Verdier, 2000, Galor, Moav and Vollrath, 2006). See Benabou (1996) and Aghion, Caroli and García-Peñalosa (1999) for surveys of this literature.

the 19th century, and links the current economic difficulties of South American nations to their greater inequality.

A major empirical challenge for this view, however, is that economic inequality is also correlated with many other potential determinants of long-run development. Most important for the focus of this paper, economic inequality may be associated with political inequality, in the sense that collective choices reflect the wishes and interests of a small subsection of the society. Theoretically, we may expect economic inequality to lead to political inequality (as the economically powerful become politically more influential), but the reverse link is at least as important, as those with political power will be able to amass greater economic wealth. To illustrate this point, note that there is a negative relationship between land inequality and development not only when we compare the United States to South America, but also across the US states. For example, Figure 1 shows a plot of the land gini in each US state in 1860 against total school enrollment in 1870 (see below for data details). There is a clear negative relationship, with the more unequal Southern states having lower enrollments. Figure 2 plots the relationship between the land gini in 1860 against the enrollment rate in 1950 and shows that this relationship persists to the 20th century.[3] Do these correlations establish that there is an adverse effect of economic inequality on schooling? While this is a possibility, one also has to bear in mind that the US states with greater economic inequality are also those with greater political inequality. For example, the Southern states were not only more unequal economically, but exhibited a very high degree of political inequality, with a large fraction of the population disenfranchised and large planters controlling politics directly or indirectly. Therefore, one can imagine that it might be the relationship between political inequality and economic outcomes that underlies the patterns shown in Figures 1 and 2. Political inequality may retard development because elites who control politics may create rents for themselves,

[3] A similar relationship between land inequality and education across US states during the mid-20th-century is documented in Galor, Moav and Vollrath (2006) and Ramcharan (2006). However, consistent with Nunn's (2007) results on the relationship between land inequality and income today, we find that the relationship between land inequality in the 19th century and current educational attainment is much weaker. This presumably reflects the rapid convergence of Southern states to the US average in terms of education and income per capita over the past 50 years following the major educational and political reforms in the South. The fact that the relationship between historical economic inequality and educational attainment has disappeared in less than half a century following political reforms further bolsters our evidence from Cundinamarca suggesting that political inequality is as important as, or more important than, economic inequality in shaping comparative development.

impede entry (Acemoglu, 2007a), and have little interest in the provision of public goods, including schooling (Bates, 1981). Political inequality will also tend to be associated with the absence of political competition and accountability, two factors which help to guarantee that political systems generate desirable outcomes.[4]

Is it economic or political inequality that matters for long-run development? And how does inequality in general interact with the institutional structure of a society in shaping its development path? These questions are made interesting in part because even though it is typically asserted that economic and political inequality go hand in hand, particularly in Latin America and across US states, this is not necessarily so everywhere else in the world, or even, as we show, in Colombia. For example, in much of Sub-Saharan Africa since independence measured economic inequality has been quite low, but political inequality has been severe with rule by long-running autocrats or small cliques, most clearly in the Sudan, Angola, the Congo, Malawi, Côte d'Ivoire, Togo and the Cameroon. This combination led to disastrous development outcomes. In contrast to the African cases, development in South Korea and Taiwan seems to have taken place precisely in the context of economic equality, but under dictatorial regimes, with political power concentrated in the hands of a small elite. Finally, there are examples of rapid development with high economic inequality but relative political equality, such as Mauritius in the 1970s and 1980s. It is therefore important to attempt to "unbundle" the separate effects of economic and political inequality on long-run development both to gain a better understanding of the causes of the process of economic development and to evaluate the newly emerging conventional wisdom about the sources of underdevelopment in Latin America.

Despite the importance of the aforementioned questions, they have not been tackled by the existing literature. The early cross-country work finds a negative correlation between economic inequality and growth (for example Alesina and Rodrik, 1994, Persson and Tabellini, 1994, Perotti, 1996), but as noted above, this work does not distinguish between political and economic inequality, which are often highly correlated. Moreover, even the negative correlation between economic inequality and subsequent growth appears to be non-robust (Barro, 2000,

[4] Acemoglu and Robinson (2000a, 2006a) also suggest that in societies with significant political inequalities, those with political power may block the introduction of new technologies or underinvest in public goods because of the fear that this will erode their political power.

Forbes, 2000, Banerjee and Duflo, 2003).[5] There is also micro evidence on the relationship between economic inequality and development, for example Benjamin, Brandt and Giles (2006). The issue of the effects of political inequality has not been systematically addressed, however, except to the extent that it can be associated with the absence of democracy. While some theoretical papers suggest that democracy ought to be good for development (Acemoglu, and Robinson, 2000b, Lizzeri and Persico, 2005), others argue the relationship is ambiguous (Acemoglu, 2007a) and the empirical literature mostly finds no effects (Barro, 1997), though Bond, Barndt, Gerring and Moreno (2005) and Persson and Tabellini (2006) find a positive effect of the cumulative democratic history of a country on economic growth.

In this paper we investigate the influence of economic and political inequality on long-run development using microdata from the state of Cundinamarca in Colombia. Our focus is the critical period of development in the late 19th century when Latin American economies began to grow and integrate with the world market. Cundinamarca provides a natural setting for such an investigation since it was the center of the largest pre-Columbian civilization in Colombia, the Muiscas. It also contains Bogotá the capital both of colonial and independent Colombia. In many ways, Cundinamarca was at the heart of the Spanish colonial system. Our investigation is made possible by unique data on 19th-century land ownership. In 1879 and 1890 the state of Cundinamarca undertook comprehensive land censuses (*catastros*) which recorded the identity of each landowner in the state, the name of their farm and the value of their land. We use these data to construct gini coefficients for the distribution of landed wealth. The *land gini* is both a natural and easy to interpret measure of economic inequality, and it is used commonly in the literature. Moreover, by focusing on land inequality, we can capture the major source of economic inequality in South America emphasized by Engerman and Sokoloff (1997).[6]

To measure political inequality we collected data on the identity of all of the mayors of the municipalities of Cundinamarca for the period 1875 to 1895. Specifically, we construct

[5] To deal with the ubiquitous omitted variable biases in such regressions, Easterly (2007) instruments inequality with the extent of land suitable for growing sugarcane and finds a negative effect on growth. Since the presence of sugar plantations may create negative effects through a variety of channels, including political inequality, this evidence does not establish that it is economic inequality that matters or that there is a causal effect from overall economic inequality to growth.

[6] Though some of these data has been discussed by historians, for example Jiménez (1985), and Palacios (1981) provided an analysis of the 1879 data for the entire department, we are the first to study these data more systematically and examine the long-run consequences of land inequality in Cundinamarca.

an index of *political concentration*, which measures the extent to which political officeholding was monopolized by individuals. Throughout this period, the right to vote in Cundinamarca was restricted by property and literacy requirements. Nevertheless, the distribution of political power varied a lot across different municipalities of Cundinamarca, with some having frequent turnover of mayors, while in others the same family or small group of families kept power for extended periods.[7]

Finally, our data also enable us to investigate another interesting related question, the developmental implications of the overlap between economic and political power. In particular, having both political and economic power concentrated in the hands of a small group of individuals creates both benefits (since the politicians are willing to choose policies that encourage investment as this increases the value of their own assets) as well as costs (since a greater degree of elite control of politics and the economy can lead to the existence of a landed oligarchy, which may be costly for development).[8] We investigate these questions by constructing an index of *overlap*, which measures the extent to which large landowners and politicians were the same people.[9]

The main results of the paper are as follows. First, by way of comparison, using micro data from the 1860 US census, we show that while the distribution of landed wealth in Cundinamarca was considerably more unequal than Northern US states, it was less unequal than in the US South.[10] More important and somewhat surprising, we find a negative association between

[7] We calculated political concentration both at the level of individuals and aggregating last names to the level of families. However, the results with families were very similar and in the paper we report results only with individuals.

[8] Classic works that emphasize the cost of landed oligarchy in Latin America include Stein and Stein (1970), Gilbert (1977), Stone (1990), and Paige (1997). See Schwartz (1996) for a review of the facts and issues. Acemoglu (2007a) and Acemoglu and Robinson (2006b) present models in which such concentration of power can lead to adverse effects. On the other hand, many simple political economy models suggest that congruence of interests between the politically and economically powerful may be good for economic development (see, for example, Acemoglu, 2007b).

[9] There is an interesting literature that indirectly speaks to this issue. This literature finds that connections between politicians and firms tend to raise the asset prices of firms (Fisman, 2001, Johnson and Mitton, 2003, Faccio, 2006), get them preferential access to loans from government banks (Khwaja and Mian, 2005) or policy favors (Bertrand, Kramarz, Schoar and Thesmar, 2006). Bertrand et al. (2006) also find that politically connected firms alter their decisions in response to political incentives. However, this literature has not looked at the implications of these linkages for development outcomes.

[10] This in itself is important. We know little about the basic historical facts on comparative wealth inequality in Latin America and what we do know is not always consistent with the view espoused by Engerman and Sokolof (1997) that Latin America always had greater economic inequality than the United States (see Jones, 1980, Johnson, 1994). Most notably, Coatsworth (1998) argues that greater inequality in Latin America is a

land inequality (land gini) and political concentration across municipalities in Cundinamarca. Though this is inconsistent with the stylized picture that, at least in Latin America, political and economic inequality often covary, it is actually consistent with the historical literature on Colombia which stresses that politics was a career open to people of many backgrounds (see Safford, 1972, 1974, Deas 1993, and Uribe-Uran, 2000).

Our second set of results are rather surprising. When we look at current outcomes, we find that land gini (economic inequality) is *positively* associated with good outcomes. For example, areas that were more unequal in the late 19th century have higher levels of secondary and primary school enrollment, lower poverty and higher urbanization. Figure 3 shows the relationship between the land gini at the end of the 19th century and contemporary secondary school enrollment in Cundinamarca. In contrast to Figures 1 and 2 for the United States, there is now a positive relationship. A natural concern is that this positive relationship may reflect the effect of some omitted factors, such as higher land quality in places with higher inequality. We attempt to deal with potential sources of omitted variable bias by controlling for a rich set of geographic characteristics and current land inequality. Overall, our results suggest that the relationship shown in Figure 3 is relatively robust. We also find similar results when we look at outcomes at intermediate dates, such as data from the 1937 census. The estimated effects are also large economically. For instance, the historical land gini on its own accounts for about 30% of the variation in the contemporary outcome variables.

Even though this correlation does not establish a causal effect, it is difficult to rationalize with theories that argue for a direct causal link from economic inequality to long-run economic development, such as that in Engerman and Sokoloff (1997). This is particularly challenging to the view that greater land inequality will have negative effects on economic development by depressing education, for example as articulated by Galor and Zeira (1993), Benabou (2000), Engerman and Sokoloff (1997), Galor, Moav and Vollrath (2006) and Ramcharan (2006). Our evidence shows that land inequality is uncorrelated with literacy in 1937 and has a positive effect on primary and secondary school enrollment in 1993.

When we turn to political variables, however, we find a fairly robust negative relationship

relatively recent phenomenon associated with the economic developments of the late 19th century, leading to some group of politically-powerful individuals monopolizing large productive stretches of land. Our result that land inequality in the US South was greater than in Cundinamarca provides support to this viewpoint.

between political concentration (our measure of political inequality) and good economic outcomes. Figure 4, for example, shows a significant negative relationship between our index of political concentration at the end of the 19th century and secondary school enrollment today. In contrast, we find no robust effect of the overlap measure discussed above on either long-term or medium-term outcomes.

Though difficult to reconcile with the conventional wisdom, our findings are consistent with other strands of research, including both the historical literature on Colombia and Latin America and work by Bates (1981) on the political economy of Africa. Bates (1981) documented that economic policy in post independence Kenya was more conducive to better economic outcomes than in Ghana because of the balance of power between politicians and economic elites in the former country. In Ghana, smallholders growing cocoa could not solve the collective action problem and were unable to restrain politicians from engaging in costly clientelism and choosing highly distortionary economic policies. In Kenya, mostly as a legacy of white settlement in the highlands, farm sizes were larger and an agricultural elite was able to organize and check the power of the politicians in Nairobi. In consequence, better policies and economic outcomes resulted. Therefore, Bates's comparison of Ghana versus Kenya provides an example in which greater (land) inequality led to better economic outcomes.[11]

In this light, a possible interpretation for our results is that powerful and rich landowners may be creating checks against the most rapacious tendencies of politicians. Consequently, in the municipalities with major landowners, distortionary policies that could be pursued by politicians were limited, and this led to better economic outcomes. This interpretation is also consistent with the negative association between political inequality and economic outcomes (as well as the negative relationship between economic and political inequality we find in Cundinamarca). Though plausible, this explanation is in stark contrast to both the conventional wisdom about the source of underdevelopment in Latin America and to the insights of many economic models emphasizing the negative effects of inequality by restricting access to credit or

[11] Our findings and this interpretation are also consistent with Coatsworth (1998, 2005) and Nugent and Robinson (2002), who have emphasized that economic inequality in Latin America is better thought of as an outcome of the unequal distribution of political influence. In turn these more general arguments echo a large literature by historians, for instance Solberg (1969) or McCreery (1994).

Our results are also consistent with Banerjee and Somanathan's (2006) finding that higher land inequality is associated with greater public good provision in India. They suggest that this may be because higher land inequality allows landowners to solve their collective action problems.

through political economy mechanisms. As a check on the plausibility of our interpretation, we use the microdata from the Cundinamarca land censuses to construct a separate *overall land gini*. While the standard measure of the land gini captures inequality among landowners, the overall land gini measures inequality in the entire population, assigning zero land holdings to families without any land. According to Bates's hypothesis, it should be land inequality among landowners—i.e., the standard land gini—that should have a positive effect, while overall land gini should have no impact on economic outcomes. According to the Engerman-Sokoloff type hypotheses and to economic models emphasizing the adverse effects of inequality, both of these measures should have a negative effect on economic development. We find that when both measures are included together, it is inequality among landowners—the standard land gini—that has a positive effect on subsequent economic outcomes, while the overall land gini has a small negative and insignificant impact.

One question raised by our interpretation is the source of the difference between the results we find in Cundinamarca and the patterns across US states in the 19th century, where land inequality appears to be strongly negatively correlated with economic outcomes. We believe that the answer to this question may lie in the differences in the level of political development between the United States and Colombia. Like 20th century Africa, Colombia in both the 19th and 20th centuries can be characterized, in the terminology of Acemoglu, Robinson and Verdier (2004), as "weakly institutionalized" in the sense that political institutions placed few constraints on what actions politicians could take. Bates' insight was that in such circumstances land inequality may be associated with better outcomes because, at least when landed elites are distinct from politicians, such elites can check the power of politicians. In the central areas of Cundinamarca, where landed elites were more consolidated and land inequality higher, they were able to constrain politicians. In consequence political concentration was lower. In more peripheral areas of the department, it was easier for politicians to consolidate their hold on power since there was no strong economic elite to counterbalance their power. When unchecked, politicians were less accountable and, as we show, were able to accumulate large amounts of land and wealth. The resulting political economy also appears to have involved a severe lack of public good provision. In contrast, the relationship between inequality and economic outcomes appears to be different in strongly institutionalized environments such as the United States.

Here, political institutions place certain constrains on politicians so that having a strong landed elite is not necessary as a check against politicians and does not necessarily create a tendency for better outcomes. Rather, and possibly consistent with the US evidence, in such environments greater inequality may have negative economic or political consequences (for example, in the extreme via "political capture," as in Acemoglu and Robinson, 2006b, or Acemoglu, Ticchi and Vindigni, 2006). This description is broadly consistent with the situation in the US South. Landed elites in the Southern US, both in the pre and post-bellum periods, tended to have more say in politics and were able to use their power strategically to generate rents for themselves, by creating a low-wage, low-skill labor market and by underinvesting in education so as to make the plantation labor force easier to control and less mobile (Wright, 1986, Margo, 1990).

Therefore, the overall pattern that emerges from this interpretation is one that can be summarized schematically as follows:[12]

	high economic inequality	*Examples*	low economic inequality	*Examples*
weakly institutionalized polities	better property rights	*Kenya Central Cundinamarca*	worse property rights	*Ghana Peripheral Cundinamarca*
strongly institutionalized polities	captured politics	*Southern US*	competitive politics	*Northern US*

Our final set of results also provide support for the interpretation presented above. We exploit the micro data on land holdings and the identity of politicians to investigate the mechanism via which political inequality might be affecting economic outcomes. In particular, we use linear and quantile regressions to document that those with political power are able to increase

[12] Our discussion and the schematic summary above represent the US South as "strongly institutionalized". An alternative is to view the US South, just as the 19th-century Colombia, as weakly institutionalized. In this case, the outcomes in the US South are the intermediate outcomes generated by highly unequal weakly-institutionalized polities, which are inferior to those arising in strongly-institutionalized polities such as the US North. This alternative perspective is consistent with all the results we present in this paper and with our general interpretation, though we believe that the power of the Federal State in the United States in the 19th century put certain real restrictions on politics in the South and justifies our schematic representation of the South as strongly institutionalized.

the value of their land holdings much more rapidly than others. In particular, an individual who remains a politician for four years *triples* the value of his landholdings relative to other landowners. This is a very large effect, suggesting that politicians are able to use their position in order to increase their wealth substantially. These results illustrate a direct mechanism through which political power played an important role in the allocation of economic resources in 19th-century Cundinamarca.[13] Finally, consistent with these results, we also find that those with political power seem to be significantly more likely to acquire additional land than the likelihood of those with land to become politicians.

Overall, even though what we present in this paper are historical correlations (not necessarily estimates of causal effects or structural parameters), they are both challenging to the conventional wisdom and paint a picture very different from those obtained from cross-country studies and from the within-US variation shown in Figures 1 and 2. At least for Cundinamarca (and as we will show below, for Colombia as a whole), there is no evidence that greater land inequality is associated with bad economic outcomes. On the contrary, greater land inequality more than 120 years ago has a positive predictive power for economic outcomes today, even after controlling for current land inequality and a variety of geographic controls. In contrast, greater monopolization of political power in the hands of particular families or individuals during the 19th century seems to be robustly associated with worse outcomes today.

The paper proceeds as follows: in Section 3.2 we describe the historical and institutional setting of Cundinamarca and some of the relevant literature. Section 3.3 describes the historical and contemporary data we use in this paper and introduces the measures of land gini, political concentration and overlap. Section 3.4 compares land inequality in Cundinamarca to inequality in US states around the same time. In Section 3.5 we examine the correlations between these variables and long-run outcomes in 1993 and 1937. Sections 3.6 and 3.7 examine the dynamics of wealth accumulation and political office holding. Section 3.8 concludes.

[13] A number of caveats are once again important to note. First, unobserved heterogeneity in the talents of different individuals might be responsible for some of these results. Second, our regressions are not informative about whether this process of political power leading to economic wealth is efficient or inefficient.

3.2 The Setting

In this section, we provide some relevant background information about the history and institutions of Cundinamarca and Colombia and discuss in more detail the relationship between our work and the relevant historical and social scientific literatures. The modern department of Cundinamarca[14] was the heart of the Muisca civilization at the time of the conquest of Colombia and the capital of Colombia, Bogotá, is located in the middle of the department. Since the greatest density of indigenous peoples were in Cundinamarca and the neighboring department of Boyacá, Spanish colonial institutions originated here and the first grants of *encomienda*, the institution which allocated the labor and tribute of indigenous peoples to conquistadors, were given by the conquistador Gonzalo Jiménez de Quesada in this region beginning in 1538.[15] Subsequently large haciendas emerged in Cundinamarca and throughout the colonial period the department remained at the heart of state and society in the Spanish province of New Grenada.[16] This situation persisted after independence with Bogotá remaining the capital and in the period we study Cundinamarca was clearly at the heart of national politics and the home of a great deal of the most important sections of the political elite.[17]

From at least the 1850 presidential election onwards political conflict in Colombia coalesced around two parties, the Conservatives and Liberals. In 1850 the Liberals won the presidency for the first time and José Hilario López became president. From then until 1885 the Liberals controlled the central state except for a brief period after 1856 when they lost a presidential election to the Conservatives held under universal male suffrage (Bushnell, 1971). The Liberals shortly afterwards reclaimed control through a brief civil war and wrote a new liberal constitution at Rionegro in 1863.[18] The Rionegro constitution was highly federal and the right to determine who could vote was delegated to the states.

In 1885 there was another civil war between the parties and power switched to the Conserv-

[14] The name for the department stems from an Indian phrase Kundur marqa which means the "Condor's nest."

[15] The best overview of the colonial period are Colmenares (1973), Melo (1996) and the early chapters of Safford and Palacios (2001).

[16] Some narrative information on the emergence of haciendas in central Cundinamarca is in Pardo Umaña (1946) and Villamarin (1975).

[17] Key Conservative Presidents such as Miguel Antonio Caro (President between 1894-1898) and José Manuel Marroquín (President 1900-1904), both of whom appear in the 1890 catastro, lived their entire life on the Sabana de Bogotá, the intermontane plane on which Bogotá sits.

[18] The best overviews of politics in this period are Delpar (1981), Park (1985).

atives until 1930. This period, known as the *Regeneración* (Regeneration) led to the re-writing of the constitution and an undoing of many of the policies promoted by the Liberals. In particular, federalism was abolished and power was centralized to the national state. There were also important changes in economic policies, for example a significant increase in tariffs and a general movement away from free trade.[19] The Liberal election victory of 1930 led to the introduction of universal male suffrage in 1936 and the introduction of more progressive social and labor market policies but led to increasing political polarization between the parties which culminated in the victory of Conservative Mariano Ospina in 1946 followed by a partisan civil war (the so-called *La Violencia*) which led to a military coup in 1953. The parties negotiated a return to democracy in 1958.

There are many interpretations of long-run development in Colombia from various perspectives. The 19th century Liberal politicians and intellectuals, such as Manuel Murillo Toro, Salvador Camacho Roldán, José Maria Samper and Miguel Samper, wrote extensively on economic matters and promoted a version of classic 19th-century liberalism as the way to modernize and develop the country. Vestiges of the colonial system were one of the main things they criticized. During the Liberal period between 1850 and 1885 tariffs were cut, monopolies abolished, the remnants of colonial institutions such as slavery finally destroyed, and Church lands were expropriated. However, the Liberal period also generated significant economic and political instability, and McGreevey (1970) argues that there was a notable increase in inequality during this era. Despite transitory booms it was only with the sustained expansion of the coffee economy from the 1880s onwards that economic growth began in Colombia. Growth has been sustained but slow ever since, and after 1900 Colombia has remained at about 18% of US GDP per-capita (Robinson and Urrutia, 2007). The development of the coffee industry was linked most famously to a frontier expansion into the current states of Caldas, Risaralda and Quindío which is typically characterized as rather egalitarian by Latin American standards (the classic work is by Parsons, 1949).

For our focus, the institutions governing the selection of mayors and their powers are essential. During the Liberal period mayors were appointed by the departmental governors who

[19] For overviews of the politics of this period see McGreevey (1970), Bergquist (1978), Posada-Carbó (1997) or Mazzuca and Robinson (2006).

were themselves elected. After 1885 and the centralization of power, governors still appointed mayors but were themselves appointed by the president of the Republic. Municipal councilors were elected throughout the entire period. The centralized appointment of mayors was only abandoned in 1986. Before 1885 the governor of Cundinamarca was a Liberal[20] except for a brief period in 1867 when a Conservative, Ignacio Gutiérrez was elected, only to be replaced with a Liberal by the federal government in 1868 (Delpar, 1981, p. 96). After 1880 the governor was a more moderate Liberal from the camp of President Rafael Núñez (called Independents) and by the time of Núñez's second presidency after 1884 Independents were cooperating with Conservatives in the department (Park, 1985, p. 250). Under the Political and Municipal Code of 1858 (Estado de Cundinamarca, 1859) mayors were appointed each year along with a substitute and the term of the mayor was six months after which he was replaced by the substitute for six months. Article 130 of the code says "At the end of each term, the substitute becomes the mayor and executes the functions in the next period; only in extraordinary cases there will be a new appointment of the mayor, since in ordinary cases the only appointment that can take place is the one for the substitute each semester." In practice, however, repeated terms for the same mayor were common. For example, in Suesca, Rafael Olaya was mayor continually from 1871 to 1883 (Olaya was also the fifth largest landowner in the municipality with land worth 24,000 pesos in 1879 when then mean value of land in the municipality was 1,429 pesos). After 1885, the law was changed so that the term of a mayor became one year and mayors could be officially reappointed (Estado de Cundinamarca, 1889, Article 227).

In terms of the power and responsibilities of the mayor, Article 127 of the 1858 code says that "The mayor is the highest figure of the public administration in the District, and as the representative of the Executive Power he is in charge of the execution of the laws in the District." Mayors were in charge of raising property taxes ('rents') to fund schools and Article 298 of the 1858 code states that there "Is an obligation for every city, village or parish to maintain a public primary school for boys and another one for girls." Taxes were also supposed to pay for the police and public works such as the maintenance of roads and bridges. Mayors therefore had a large number of tasks with respect to the enforcement of laws and the provision of public

[20] Even though the period before 1885 was dominated at the national level by Liberals, Conservatives controlled the states of Antioquia and Tolima.

goods and Cruz Santos (1965, Volume I, p. 519) estimates that in 1869-1870 about 23% of total government expenditures were decided at the municipal level.

One of the most important parts of the mayors' responsibilities from the point of view of this paper was his role in adjudicating land disputes. During the 19th century large areas of government owned land, or *baldíos*, were distributed to individuals in Colombia and there were constant disputes over the title to lands. Although the right to "regulate the distribution or destiny of uncultivated lands" was delegated to the municipal councils, the secondary literature on this makes it very clear that mayors played a pivotal role in determining the outcome of these conflicts, probably because they were in charge of the police. Palacios' (1980) seminal work on the evolution of the coffee economy in Colombia has an extensive discussion of the allocation of land and property rights noting that "local control of power was the *sine qua non* in this process of distribution" (p. 186). Although national laws gave "squatters" the chance to file for title in government lands if no other previous title existed, the reality was that many were expropriated by those who controlled the instruments of local political power. LeGrand (1986, p. 73) notes "By their compliance with or disregard of legal prescriptions, municipal authorities shaped the expression and resolution of the public land conflicts. Given their strategic position in the bureaucratic hierarchy, they also played a significant role in interpreting the issues involved in any given dispute to authorities at higher levels." Mayors and local police were the people who evicted squatters and supported or denied claims to land ownership. Both Palacios (1980, pp. 185-195) and LeGrand illustrate this with many stories. For instance, LeGrand describes the typical way in which squatters would be forced to recognize the title of the politically powerful: "Once entrepreneurs had established property rights over the land, whether through grants or by illegal means, they then took action to deprive the settlers living there of their independence. Accompanied by the local mayor or a police patrol, they informed the settlers who had opened the land that they had mistakenly occupied private property" (p. 58).

Who were these mayors? Christie (1979, p. 50) in his study of local political bosses—*gamonales* (also known as *caciques*)—argues "Only sometimes were they the largest landowners," and LeGrand (1986, p. 73) asserts "Large landowners, for the most part, declined to occupy local political posts." One interesting source on these matters is Rufino Gutiérrez who in his capacity as Prefect visited many municipalities of Cundinamarca in 1886 and 1887 and

subsequently wrote a memoir (Gutiérrez, 1920).[21] Gutiérrez (pp. 90-91) points out that few mayors were important landowners, but instead tended to be from small landowners. He argues that the major landowners used their influence to get mayors appointed who would favor their interests (see also Deas, 1971, on local politics). These conclusions are consistent with the general historiography on Colombia which, following Safford (1972, 1974), has played down the political role of large landowners. Though Colombia did have land-owning caudillos like José Maria Obando and Tomás Mosquera, this literature claims that, by and large, politics was a career in 19th-century Colombia and attracted people from all backgrounds (see also Uribe-Uran, 2000). Our empirical findings are partially consistent with this view. We find that there were many non-land-owning mayors (often using their powers to enrich themselves), though there was also some overlap between landowners and politicians. Indeed in a number of municipalities, there were close links between the largest landowners and local politics. In addition to the case of Suesca discussed above, in Fomeque the largest landowner, Manuel Pardo Rojas (land valued at 20,020 pesos in 1879 when the mean land value of landholdings in the municipality was 989 pesos) was mayor six times. In Une, Simon Rojas (land holding of 3,500 pesos when the mean was 883 pesos) was mayor ten times between 1873 and 1883. There are many other examples of mayors belonging to the top quintile of the land distribution.

Moreover, as Christie (1979, 1986) himself showed, elite families were heavily involved in local politics. Christie, in his re-examination of the nature of frontier expansion in 19th century Colombia, compiled a list of the mayors and members of the local councils of all the municipalities of Viejo Caldas up until 1905. Using documents on the history of Manizales and other municipalities, Christie was able to determine the 27 most prestigious families who were also owners of great land concessions in the region. Matching the official posts with the last names of these families, he estimated that during the period between 1827 and 1905 more than 2,500 out of the 3,500 positions available were occupied by members of these families. When doing the same exercise but for the year 1920 this time, Christie found that 75% of the mayors came from the same families.

[21] Article 115 of the 1858 Municipal Code states that "The Prefect, as political representative of the Executive Power, is in charge of the Political administration of the Department and the Corregidores and Alcaldes are subject to him," Article 116 continues that the Prefect will "visit all the Districts of the Department once in a year and find out if the laws have been implemented and enforce them for a better execution."

What do we know about the process by which mayors were appointed? Though we do not have direct evidence on this, the most likely process that drove the appointments is that governors had to respect local power structures and local *gamonales* and *caciques*. Neither the central state nor the department of Cundinamarca had military forces that were sufficient to intervene effectively in local politics and in practice it was probably impossible to overturn local power structures, even had there been an incentive. Evidence supporting this interpretation comes from the dramatic shift in power with the *Regeneración* in 1885 in which the Conservatives replaced the Liberals at the national level (see Mazzuca and Robinson, 2006). Even though at the national level the Conservatives drove the Liberals out of the legislature to such an extent that in the 1890s there was only one Liberal, Rafael Uribe Uribe, in the legislature, in most municipalities the same mayors were appointed before and after the *Regeneración*. Additional evidence consistent with this pattern comes from the *Memorias* of Gutiérrez. Gutiérrez records that he was called urgently to visit Choachi and found that the public administration was in a terrible shape. He notes that "the person that by that time was the Mayor, Mr. Patrocinio Pardo, did not satisfy the position, for several justified reasons, we demanded his resignation and appointed his substitute Mr. Pedro Angel Garcia" (p. 51). Though Gutiérrez may have removed Patrocinio Pardo, he was back as mayor in 1890, 1891 and 1893, and had previously been mayor in 1878 and 1881. Pedro Angel García (who was in the top quintile of the land distribution with land of 2,180 pesos when the municipal average was 874 pesos) served as mayor nine times between 1871 and 1891 and several other members of the Pardo and García families did as well. The fact that Patrocinio Pardo could be removed for incompetence but was quickly re-appointed is consistent with the interpretation that the governor, who made the appointments, had to recognize the power of local elites. The situation appears to have been similar in Suesca. Rafael Olaya was removed from the office of mayor in 1873 for manipulating *adhesiones*—endorsements or declarations of support for different political candidates (Delpar, 1981, p. 102). But our data show that he was immediately re-appointed. Another interesting example comes from Deas' (1977) study of the Hacienda Santa Bárbara in Sasaima. Though he points out that Sasaima was and is a Conservative municipality (p. 286), the first person appointed mayor after the *Regeneración* was Felipe Castellanos with Esteban García as his alternate. Yet both of these people had been appointed in the Liberal period, Castellanos as

mayor in 1879 and 1883 and García in 1880. The probable interpretation of this is that even Liberals had to appoint Conservative mayors in Sasaima.

Finally, the degree of political concentration in Cundinamarca, which we will exploit and document further below, is illustrated by a few prominent examples. For instance, in Viani, out of 44 mayors who held office, half of them corresponded to only 4 individuals and 25 out of the 44 came from either the Bonilla or Hernandez family. In Arbelaez, the Rodriguez family was in power in every single year for which we have data on. With the exception of 1888, Ramon Rodriguez was the mayor in every year between 1887 and 1895. In Quipile, only 3 individuals account for 20 of the 44 mayor appointments that were recorded. Francisco Escobar was the mayor during 1880-1884 and Genaro Mendieta from 1888-1895. In La Calera, a municipality founded by Don Pedro de Tovar in 1765, half of the mayor appointments came from the Tovar family which was in power every year during the 1875-1895 period (except in 1889). In Guasca, almost 70% of the 51 mayor appointments came from only 3 families and the Acosta and Rodriguez controlled power during most of the period. Similarly, most of Cucunubá's mayors came from the Gómez family, which was in power during 1875-1881 and 1887-1895. Today, much of Cucunubá is owned by Pedro Gómez. These are only a few examples that illustrate the way in which power was concentrated in the hands of a few families and individuals in many municipalities.

3.3 The Data

3.3.1 Cadastral Data and the Land Gini

Our basic source of data on economic inequality in 19th century Cundinamarca are the cadastral (land census) data collected by the state of Cundinamarca in 1879 and 1890.[22] The cadastral information was collected by State officials for tax purposes and provides information on the location, owners and value of every plot with value above $25 Colombian pesos in 1879 and above $100 in 1890. The censoring values for each land census are low, so that we have information for

[22] Cundinamarca also undertook such *catastros* in 1868 and in 1915. Unfortunately we have been unable to locate these data, possibly because the State archive of Cundinamarca was burned down in April 1948 in the rioting which followed the assassination of the Liberal politician Jorge Eliécer Gaitan, though see Camacho Roldán (1892) for a discussion of the 1868 data. The departments of Tolima and Santander also conducted several *catastros* in the 19th century but we have also been unable to find these data.

most plots. In 1879, there are 15,478 landowners in Cundinamarca and this number increases to 18,598 in 1890. We have no real information about the reliability of this data though Camacho Roldán (1892) praises the 1868 data as being accurate. Gutiérrez (1920) noted in his visit to Usme in 1886 that the value of lands for that municipality in the *catastro* was low relative to his own expectations, but he does not systematically record views on this for all the places he visited.

We will construct two measures of land inequality. The first is the standard measure of the *land gini* coefficient, which measures land inequality among landowners. For each municipality at each date, we construct the gini coefficient using the standard formula

$$g_{mt} = \frac{1}{n_t^2 \bar{y}_t} \sum_{i=1}^{n_t} \sum_{j=1}^{n_t} |y_{i,t} - y_{j,t}| \tag{3.1}$$

where $i = 1, ..., n_t$ denotes the total number of land owners at time t, $y_{i,t}$ is the value of land owned by individual i at time t, and and $\bar{y}_t = \frac{1}{n_t} \sum_{i=1}^{n_t} y_{i,t}$ is the average value of land at time t. Throughout most of our analysis, we average the gini coefficients across the two dates for each municipality to arrive to our main measure of (average) *land gini*. The average gini over this entire period was 0.65 (see Table 1 below). If we look at the two land censuses separately, we find that the land gini was 0.64 in 1879 and increased slightly to 0.66 in 1890.[23]

Despite its widespread use, the land gini suffers from an obvious problem. An area in which all land is held by two very large landowners will have a low value of the land gini, because land is equally distributed among landowners. But if we looked at the population as a whole, there would be tremendous amount of land inequality. To alleviate this problem, we construct an alternative measure, *overall land gini*, which again computes equation (3.1), but uses the total number of families and assigns zero land holdings to the families who do not appear in the *catastro*.[24] We start our analysis with the land gini and then show how controlling for both

[23] There were however, striking cases of land inequality such as those of Fontibón, formerly the site of the *encomienda* of Jiménez de Quesada, which had a gini coefficient of 0.857 in 1879 and Ricaurte with a gini coefficient of 0.891 in 1890.

[24] Since the 19th century censuses do not provide information on the number of families or households, but only on the number of individuals, we used the estimate of 10 members per family provided by Gomez (1969) to convert the number of individuals in a municipality into the number of families. We then calculated the number of landless families by subtracting the total number of landowners from the total number of families.

the land gini (among landowners) and overall land gini affects the results.[25]

In Figure 5, we superimpose the distribution of the land gini on a map of Cundinamarca. This figure is useful both to show the geographic structure of Cundinamarca and the distribution of municipalities, and also depicts the variation in land inequality. Darker colors in the figure correspond to higher values of the land gini (as indicated in the legend to the figure). The picture reveals that land inequality tends to be higher in the series of intermontane basins to the west and north of Bogotá, but it is also high in the far western municipalities which are down in the valley of the Magdalena river.

3.3.2 Political Concentration

To measure political inequality, we collected data on politician (mayor) names from the *Registro del Estado* and *Gaceta de Cundinamarca,* official newspapers which published the names of principal and substitute mayors appointed in each municipality. We were able to find a total of 4763 mayor appointments between 1875 and 1895.[26] Each appointment however, does not correspond necessarily to a different individual, for the same individuals were sometimes re-appointed in many years. Hence, the 4763 different appointments we collected correspond to 2300 different individuals during this period. A striking fact is the large number of mayors. While in principle, two mayors (principal and substitute) should be appointed per year in each municipality, an average of 2.9 appointments per municipality was observed. This is because there are resignations and replacements in some years.

We used these data to construct a measure of the concentration of political power. Our measure of political concentration for municipality m at time t is computed as:

$$p_{mt} = -\frac{\text{Number of Different Individuals in Power}_{mt}}{\text{Number of mayor appointments}_{mt}}.$$

The negative sign in front is introduced so that higher values of the index correspond to higher political concentration (thus making the interpretation of the coefficients easier). Consequently,

[25] We are only able to compute the overall land gini for Cundinamarca at the end of the 19th century. We do not have micro data for Cundinamarca or the rest of Colombia today, thus the contemporary land gini numbers we use below are for inequality among landowners.

[26] Information was not reported for every single municipality in every year, but there does not appear to be any systematic bias in this.

our political concentration index takes a value of -1 when there is very low political concentration, and values close to 0 for high levels of concentration. We computed this index for the whole period 1875-1895. Table 1 shows that the mean of this variable is -0.56.

Figure 6 is similar to Figure 5 and maps political concentration across the municipalities of Cundinamarca. Now darker colors correspond to higher levels of political concentration. This figure shows that places with higher levels of political concentration are spread out all over the state. They range from municipalities like Beltran in the Magdalena river valley in the west, to Ubala which is on the eastern slopes of the cordillera. Also highly concentrated are the southern coffee growing municipality of Arbelaez, founded in the mid 19th century, and the northern municipality of Sutatausa, an area of dense Muisca settlement and one of the first municipalities to be founded in Cundinamarca.

3.3.3 Measuring the Overlap of Wealth and Political Power

In addition to our basic measures of economic and political inequality, we constructed a measure of the overlap between political officeholding and landed wealth. To do this we classified the individuals in our sample according to whether they were politicians, rich, or both. We define an individual as being both rich and a politician if we can find an exact match of the first and last name in the catastro and in the list of mayors *within* each municipality. Naturally, this procedure may lead to an overstatement of overlap if we match two different persons with the same first and last name, though this appears to be unlikely within a municipality. On the other hand, there are various reasons for understating overlap, since rich landowners may be politicians in neighboring municipalities or they may have substantial political influence without becoming mayor's themselves.

To construct our measure of overlap, let us introduce some notation. Let N_{mt} be the set of adult males living in municipality m at time t, L_{mt} be the set of adult males without any substantial landholdings or political power, R_{mt} be the rich, i.e. those with substantial landholdings and finally let P_{mt} be those with political power (mayors). It is clear that:

$$N_{mt} = L_{mt} \cup R_{mt} \cup P_{mt}.$$

Let $\#R_{mt}$ be the number of individuals in the set R_{mt}, and define $\#N_{mt}$, $\#P_{mt}$, $\#\left(R_{mt} \cup P_{mt}\right)$

and $\#L_{mt}$ similarly. Since we can directly compute $\#P_{mt}$ and $\#R_{mt}$, and observe $\#N_{mt}$, the number of individuals who are neither rich nor politicians can be computed as

$$\#L_{mt} = \#N_{mt} - \#\left(R_{mt} \cup P_{mt}\right).$$

For the purposes of our analysis, we define individuals whose land plots are in the top 25% most valuable plots as "rich landowners". In these calculations, we compute the thresholds for the entire region (and not for each municipality separately) so as to exploit the variation in the presence of big landowners driven by inequality across regions which we want to take into account.[27] In calculating the number of rich landowners in each municipality, we use the *catastros* for 1879 and 1890. For politicians, we use neighboring dates to these, so that for 1879, any individual who is a mayor between 1877 and 1882 is considered a politician, and for 1890, we look at the window from 1888 to 1892.

Our measure of overlap in municipality m at time t is computed as

$$o_{mt} = \frac{\#\left(R_{mt} \cap P_{mt}\right)}{\#\left(R_{mt} \cup P_{mt}\right)}.$$

Our main measure of overlap is the average of this index for the two dates 1879 and 1890. Table 1 shows that the mean of this variable is 0.07, so that 7% of rich landowners and politicians were both rich and in power.

3.3.4 Data on Outcomes

We have two sets of outcome variables. The contemporary data are from the 1993 population census and the Colombian statistical agency DANE (Departamento Administrativo Nacional de Estadística).

We constructed two basic education variables from the 1993 census; primary school enrollment which was calculated as the number of children attending school that are between 7 and 11 years old divided by the total number of children that are between 7 and 11 years old in

[27] We have also computed an alternative measure where individuals whose land plots are in the top 50% most valuable plots are counted as "rich landowners," with very similar results. We do not report these results to save space.

the municipality; and secondary school enrollment defined as the number of children attending school that are between 12 and 17 years old divided by the total number of children that are between 12 and 17 years old in the municipality. The descriptive statistics in Table 1 show that there is much more variation across municipalities in secondary school enrollment, motivating our focus on this measure (though we will also show results using primary school enrollment).

Figure 7 is similar to Figures 5 and 6 and maps the secondary enrollment data across the Cundinamarca municipalities. Darker colors now indicate higher enrollment. It is evident from this figure that enrollment is higher closer to Bogotá and particularly on the Sabana de Bogotá.

We also used the 1993 census to construct a measure of urbanization, defined as the proportion of the population in urban areas. The census reports urban population for each municipality so we simply divided this by the total population of the municipality. Each municipality has one urban area, the *cabecera* where the municipal government buildings are located (other subdistricts of the municipality are called *veredas*) so urban population is the population of the *cabecera*.

Finally, the 1993 census also provides an index of poverty, referred to as unsatisfied basic needs (which has the Spanish acronym NBI---Necesidades Básicas Insatisfechas) and used commonly in Colombia and in other Latin American countries. In this index, a household is counted as having unsatisfied basic needs if it meets any one of five different criteria. These are (1) inadequate dwelling, such as the floor is composed of soil or the house is made of precarious building materials. (2) The household's dwelling lacks basic services, such as piped water, sewers or toilets. (3) The household is overcrowded which is defined to be one where the number of people per bedroom is greater than 3. (4) The household is characterized by inadequate school attendance which is indicated by a child between 7 and 11 years old who does not attend school. (5) The household has high economic dependence, meaning that the head of the household has less than fourth grade education and has more than three dependents. The indicator we use is the proportion of households in a municipality with unsatisfied basic needs.

For the medium-term outcomes, we used data from the 1937 population census. While there are no data on educational enrollment in this census, we can measure the proportion of adults who were literate. We also calculated urbanization in 1937 in exactly the same way as we did in 1993. Finally, the 1937 census also records for each municipality the total number of buildings

and also the number of buildings which lack access to electricity, water and sewage. We therefore constructed the fraction of buildings without access to all public services by combining these two pieces of information, which provides us with a measure of non-educational public good provision.

We use a variety of exogenous control variables in the regressions in order to ensure that our results are not driven by omitted differences in the quality or productivity of land. Our controls include altitude of the municipality (in meters above sea level), the distance of the municipality to Bogotá (in kilometers), area (in squared kilometers), average rainfall (in millimeters). All of these data were obtained from Instituto Geográfico Agustin Codazzi in Bogotá. Distance to Bogotá may be particularly important, since Figure 5 suggests that there are a number of municipalities near Bogotá that have relatively high land inequality. We check the robustness of our results to including high degree polynomials in distance to Bogotá that would capture any non-linear effect of this variable.

Finally, we also control for the year of foundation of a municipality (from Bernard and Zambrano, 1993). While the highlands of Cundinamarca were settled in the 16th century, much of the lower Western and Eastern slopes were only settled in the mid 19th century in a process of frontier expansion. This frontier expansion was associated with the spread of the coffee economy (see Rivas, 1946, or Palacios, 1980, for discussion) and the determination of property rights in land and the nature of the societies that formed in the 19th century may be quite different from those founded during the colonial period (see Jiménez, 1985, for a detailed treatment of one such municipality, Viotá). We include the foundation date in some of our regressions to control for this source of omitted variable bias.

3.3.5 Descriptive Statistics and Correlations

Table 1 shows descriptive statistics for our entire sample and also for subsamples created according to land gini and political concentration (both average values over the two dates and the subsamples were created by dividing the sample according to median values). A number of features are notable in this table. First, the land gini at the end of the 19th century was quite high, 0.65. Moreover, it still continues to be very high today (third row). The standard deviation of this variable indicates that there is considerable variation in the extent of land

inequality within Cundinamarca. The same applies to the extent of political inequality. Also, as noted above, the outcome variables also show considerable variation, except primary school enrollment, which is very high in most municipalities, thus exhibits less variation than the other outcome variables.

Table 1 also shows descriptive statistics by dividing the sample into low and high land inequality areas (columns 2 and 3) and into low and high political concentration areas (columns 4 and 5). The comparison of columns 2 and 3 shows that all economic outcomes are better in high land inequality areas. For example, secondary school enrollment is 65% in high land inequality areas, whereas low land inequality areas have only 52% secondary school enrollment. In contrast, when we turn to political concentration, low political concentration areas have better economic outcomes. For example, secondary school enrollment is 60% in low political concentration areas and 56% in high political concentration areas. These differences are consistent with the patterns shown in Figures 3 and 4, and the regression analysis will show that these differences are relatively robust to controlling for a variety of geographic and other controls.

Table 2 describes our data further by showing the correlation matrix among our main historical explanatory variables, the land gini at the end of the 19th century, the overall land gini at the end of the 19th century, the contemporary land gini, the political concentration index and the overlap variable, as well as our main outcome variables. This table shows that there is a negative correlation between political and economic inequality, which is the opposite of the pattern that appears in the 19th-century US (where political inequality also appears to be higher in the more unequal South). This contrast between the US and Cundinamarca confirms the discussion in the Introduction. In any case, the correlation between the two variables is not very large (correlation coefficient -0.25), giving us an opportunity to determine the separate correlation between political and economic inequality and economic outcomes. Overlap is even less correlated with these two variables.

The outcome variables are also correlated with each other, though not very highly so. For example, the correlation between urbanization and primary school enrollment is only 0.23. This implies that there is independent information in all of these outcome variables, and considerable independent variation in our basic inequality variables.

3.4 The Inequality of Wealth: Cundinamarca and the United States

As discussed in the Introduction, a recently-emerging consensus relates the current differences in economic outcomes between the United States and South America to 19th-century differences in inequality (especially land inequality). Was land more unequally distributed in Cundinamarca than in the United States in the 19th century? In this section, we will see that the answer to this question is more nuanced than typically presumed. Cundinamarca appears to be substantially more unequal than the Northern United States, but more equal than the US South.

To provide a comparison of land inequality between Cundinamarca and the United States in the 19th century, we compare our land inequality data (described above) with US microdata from the 1860 land census provided in the Gallman-Parker and Bateman-Foust samples. These data, which are downloadable from the Inter-university Consortium for Political and Social Research (ICPSR) website, comprise two famous random samples taken from the 1860 census. The Gallman-Parker sample contains variables recorded for 5,228 farms located in the major cotton-producing counties of the South (see, e.g., Schaefer and Schmitz, 1985, Schmitz and Schaefer, 1986). The farms were selected from the 1860 manuscript census schedules by a sample of all farms in 405 Southern counties which each produced over 1,000 bales of cotton in 1860. This resulted in a 1.67 percent sample of all farms in the major cotton-growing counties of the eleven states of the Confederacy. We use the data on the value of the farms in dollars. The Bateman-Foust sample (see Bateman and Foust, 1974) contains demographic, occupational, and economic information for over 21,000 rural households in the northern US. The data were obtained from the agricultural and population schedules of the 1860 census and cover all households in a single township from each of 102 randomly-selected counties in sixteen northern states. We again use the data on the dollar value of farms. Together these datasets give us a picture of land distribution in both the northern and southern US in 1860.

Our calculations using these samples are reported in Table 3. In particular, we compute the land gini for individual states and for the North, the South and the entire United States. The picture that emerges from the comparison of the numbers in Table 3 to those in Table 1 is interesting. As expected, Northern US states are considerably more equal than Cundinamarca.

For example, Connecticut has the lowest land gini of 0.34, compared to the land gini of 0.65 in Cundinamarca. However, contrary to the widespread notion that Latin America is substantially more unequal than the United States, all Southern states, except Florida, Georgia and the Carolinas, are more unequal than Cundinamarca. For example, the land gini in Louisiana is 0.83, considerably higher than that of Cundinamarca. The average land gini in the South is 0.72, which is also greater than the gini for Cundinamarca, 0.65.

3.5 Inequality and Long-Run Development in Cundinamarca

We now examine the consequences of wealth inequality, political concentration and overlap for long-run development outcomes. To do this we exploit the cross-sectional variation within the municipalities in Cundinamarca. Throughout the section, we estimate cross-sectional ordinary least squares (OLS) regressions of the following form

$$y_m = \alpha g_m + \beta p_m + \gamma o_m + \mathbf{x}_m' \boldsymbol{\delta} + u_m, \tag{3.2}$$

where y_m is some measure of development in municipality m, $\mathbf{x}_m$ is a vector of covariates and u_m is an error term, capturing all other omitted factors, with $E(u_m) = 0$ for all m. In (3.2) the main objects of interest are the coefficients on the land gini, denoted by g_m, the extent of political concentration, denoted by p_m, and the degree of overlap, denoted by o_m, in municipality m. We report regressions in which each of these variables features separately and then together. We start by looking at the effect of these variables on contemporary outcomes and then turn to their effect on 1937 outcomes. A key concern in all of these regressions is omitted variable bias. For this reason, the vector $\mathbf{x}_m$ will control for a rich set of covariates, especially for measures of differences in land quality across municipalities.

3.5.1 Contemporary Outcomes

Tables 4 and 5 examine the relationship between our four contemporary outcome variables and historical land inequality, political concentration and overlap. Panel A of Table 4 is for secondary school enrollment, while Panel B is for primary enrollment. Column 1 shows the bivariate relationship between land gini and secondary school enrollment without any other

controls. There is a strong *positive* association, indicating that municipalities that were more unequal at the end of the 19th century have higher levels of secondary school enrollment today. This relationship in column 1 is the same as that shown in Figure 3 in the Introduction. The coefficient estimate is equal to 0.61, and is highly significant with a standard error of 0.09. The R^2 of this bivariate regression is 30%, indicating a large and significant correlation between historical land inequality and secondary schooling. As a different way of gauging the quantitative significance of this correlation, recall from Table 1 that the standard deviation of land gini is 0.10 in the entire Cundinamarca. The coefficient estimate implies that we expect a municipality with one standard deviation greater land gini than the mean to have approximately 0 .06 percentage points higher secondary school enrollment. Relative to the mean of this variable in Cundinamarca, 0.58, this translates into a 10% increase, which is substantial.

The main threat to the interpretation of the relationship between land inequality and contemporary economic outcomes is that municipalities with greater inequality may have higher quality lands or other sources of higher incomes. While we cannot control for all possible sources of omitted variable bias, we can check the robustness of this correlation to a range of geographic controls that should capture differences in land quality. Column 2 attempts to do this by adding altitude, distance to Bogotá, amount of rainfall, and also the historical variable, the year of foundation of the municipality. After including these controls, there is still a positive association between the land gini and secondary schooling, though the coefficient is slightly smaller now, 0.48 (standard error = 0.10).

Column 3 looks at relationship between the political concentration index and secondary school enrollment. Here we see a statistically significant (though somewhat weaker) *negative relationship*, corresponding to the pattern shown in Figure 4 in the Introduction. The coefficient estimate, -0.36, is highly significant with a standard error of 0.11. The quantitative magnitude of this effect is also somewhat smaller than the magnitude associated with the land gini; the coefficient estimate implies that a municipality with a one standard deviation above the mean political concentration index tends to have 3.6% lower secondary school enrollment in 1993. Column 4 demonstrates that this relationship is robust to including geographic controls and the magnitude of the effect is only slightly smaller, -0.35 (standard error = 0.10), than in column 3.

Columns 5 and 6 show that there is a negative but not always significant relationship between overlap and school enrollment. For example, without covariates, the relationship is insignificant, and it becomes marginally significant at 5% when the geographic controls are included.

Columns 7 and 8 look at the effect of land gini and the political concentration index when they are included together. Both variables continue to be significant, and together with the geographic controls they explain about 50% of the variation in secondary schooling across Cundinamarca municipalities.

Finally, in columns 9 and 10, we add further controls in order to deal with potential omitted variable concerns. Column 9 adds the contemporary land gini. Interestingly, this is also significant and positive, but the historical land gini continues to be positive and significant (coefficient = 0.28, standard error = 0 .11), while the political concentration index continues to be negative and significant (coefficient= -0.22, standard error = 0.11).

Column 10 is the most demanding specification and adds a quartic in distance to Bogotá in order to flexibly control for differences in the quality of land plots that may be near Bogotá. In this column we also control for the best proxy for differences in land quality across municipalities, the average land value per square kilometer from the land censuses. The quartic in the distance to Bogotá is useful since Figure 5 showed that land inequality is higher in many of the municipalities that are near Bogotá. Average land value is the market's perception of differences in land quality at the end of the 19th century and should be a "sufficient statistic" for these differences. Moreover, differences in average land value will also indirectly control for differences in tax revenues across municipalities, a major source of revenue and thus of fiscal capacity of municipalities.[28] The addition of these variables reduces the effect of the land gini to 0.16 (standard error = 0.10), which is no longer significant at 5%, but the effect of political concentration index remains unchanged and still significant at 5%.

One concern may be that Cundinamarca is atypical and some unobserved heterogeneity is responsible for the positive relationship between land inequality and secondary school enroll-

[28] We do not have data on current land values or average income differences across municipalities. Even if we had such data, it would not be appropriate to include these as controls in our regressions, since average income in a municipality is partly an outcome of education and public good provision, which we are attempting to explain with historical measures of economic and political inequality.

ment. In fact, the results in Panel A of Table 4 show not only a positive relationship between the historical land gini and secondary enrollments today, but also a positive association between contemporary land inequality and schooling. As a check for whether Cundinamarca is atypical in terms of the relationship between land inequality and schooling, we looked at the contemporaneous relationship between these two variables for all Colombian municipalities.[29] Figure 8 shows the relationship between land gini today (2002) and secondary school enrollment in the whole Colombia.[30] Consistent with the patterns for Cundinamarca, there is a positive relationship, and in fact the magnitude of this relationship is very similar to that we find in Cundinamarca. This gives us some confidence that the relationship within Cundinamarca is not an aberration, and whatever factors are responsible for the positive association between land inequality and education within Cundinamarca seem to be present when we look at the whole of Colombia.

Panel B repeats the same regressions as in Panel A with primary school enrollment. The overall pattern is the same, except that all of the variables are less significant than in Panel A, and both land gini and the political concentration index are no longer significant in column 10 when all of the controls, including the contemporary land gini and the quartic in distance to Bogotá are included. These weaker results probably reflect the fact that, as noted above, primary enrollment is already high in most municipalities.

Panel A of Table 5 looks at urbanization, which is a crude but useful proxy for overall development in a municipality and to an index of poverty constructed from the national census based on unsatisfied basic needs of a family as described in the data section. The results in this table are broadly similar. There is a positive effect of the land gini on urbanization, though this effect becomes insignificant in columns 9 and 10. The relationship between political con-

[29] We cannot look at the relationship between historical land gini and schooling for the whole of Colombia, since the historical data on land distribution are only available for Cundinamarca.

[30] In particular, Figure 8 shows the relationship excluding "outliers," that is municipalities with the highest 2.5% and lowest 2.5% values for the land gini. The relationship is very similar without excluding these extreme values, though the basic pattern in the figure is harder to see. The same results can be seen from simple regression analysis. Within Cundinamarca, a regression of secondary school enrollments on contemporary land gini gives a coefficient of 0.67 (standard error = 0.09). For the entire Colombia, the same regression leads to a coefficient of 0.57 (standard error = 0.04) without excluding municipalities with extreme values of the gini, and to a coefficient of 0.63 (standard error =0.05) when these extreme values are dropped. The coefficients are very similar when we include the standard geographic controls. In addition, including a full set of department (region) fixed effects leaves the relationship between the land gini and secondary school enrollment essentially unchanged (coefficient = 0.53, standard error = 0.04).

centration and urbanization is also negative and significant when we do not include additional controls, but becomes insignificant in columns 9 and 10.

When we turn to our index of poverty in Panel B of Table 5, the results are more robust. In all columns, there is a negative and significant relationship between the land gini and poverty and a positive and significant relationship between the political concentration index and poverty. In particular, even in column 10, where we control for a quartic in distance to Bogotá and for average land values, a higher land gini is associated with lower poverty and higher political concentration is associated with significantly higher poverty.

Overall, we conclude that, contrary to the conventional wisdom about the nature of long-run development in Latin America, there is no evidence that higher land inequality is related to bad economic outcomes. On the contrary, in most of our specifications there is a positive and significant relationship between land inequality and good economic outcomes. Instead, there seems to be a fairly robust negative relationship between political inequality on the one hand and education and poverty on the other. The results in Tables 4 and 5 also indicate that the comparatively worse development in municipalities with lower land inequality and higher political concentration might be working partly through lower provision of public goods, such as schooling, in these areas.[31]

3.5.2 Medium-term Outcomes from the 1937 Census

We next turn to the effect of the land gini, political concentration and overlap from the late 19th century on medium-term (1937) outcomes. This exercise is interesting for a number of reasons. First, looking at the 1937 outcomes is a useful robustness check on the results presented in Tables 4 and 5. Second, the effect on medium-term outcomes might be informative about

[31] We tried a number of different identification strategies to estimate the causal effect of political concentration on development outcomes using instrumental variables. All of these tried to exploit the idea that political concentration represented the legacy of the political monopoly of colonial elites. We first looked directly at the colonial elite, that is, all of the Spaniards granted *encomiendas* in the 16th century and those working for the colonial state in 1794, and matched their last names to the names of mayors at the end of the 19th century. Even though there were a number of matches, this variable turned out not to have much predictive power for political concentration. We then looked directly at where the grants of *encomiendas* were and at the density of tributary Indian population in the 16th century, but we found these to be uncorrelated with political concentration. We finally looked more generally at other measures of the colonial legacy such as the presence of the colonial state, measured by the location of tax collectors or state monopolies. Again this turned out to be uncorrelated with political concentration.

the mechanisms through which economic and political inequality might be affecting economic development.

The results with the 1937 outcomes are presented in Tables 6 and 7. In all cases, we report regressions of the form (3.2) again, with the only difference that the different dependent variables are now those that are available in the 1937 census.

Panel A of Table 7 examines the impact of the land gini, political concentration and overlap on adult literacy. A greater land gini is associated with higher literacy in column 1, but this relationship disappears once we control for the standard geographic covariates in column 2. In contrast, there is a robust negative relationship between political concentration and literacy with or without the covariates (shown in columns 3 and 4).

Columns 5 and 6 show that although the estimated coefficient on overlap is negative, it is not statistically significant. Columns 7, 8 and 9 include the land gini and the political concentration index together, and column 9 also includes the quartic in the distance to Bogotá and our proxy for differences in land quality, average land value. In all cases, there is no relationship between literacy and the land gini, but there is a robust and statistically significant negative effect of political concentration on literacy. Consequently, we conclude that the negative effect of higher political inequality on medium-term educational outcomes is relatively robust.

Panel B of Table 6 examines urbanization in 1937. The results here are similar to those for urbanization in 1993. The land gini has a significant positive coefficient. Political concentration and overlap are also significant and have the same sign as in the other tables, though they become less significant when entered together with the land gini. When all of these variables, as well as the quartic in distance to Bogotá and average land values, are included together in columns 7, 8, and 9, the results become insignificant, though the quantitative effect of political concentration index is similar to earlier columns.

Finally Table 7 looks at a direct measure of public good provision for 1937, the fraction of buildings without access to public services. This variable is informative about whether the effects of land inequality and political concentration might be working by affecting the extent of public good provision in different municipalities. Column 1 shows that greater land inequality is associated with better outcomes (greater access to public services). This effect remains statistically significant when covariates are added in column 2, though the size of the coefficient

falls by one half.

Columns 3 and 4 show that there is a negative relationship between political concentration and public good provision in 1937 with or without covariates. In this case, the magnitude of the coefficient is also relatively insensitive to whether or not covariates are included. Columns 5 and 6 then show that higher overlap is also significantly correlated with worse outcomes. However, this effect is not robust to the inclusion of economic and political inequality. The effect of the land gini continues to be negative and significant in columns 7 and 8, but not in column 9. The coefficient on political concentration index remains similar even with the extended set of controls, though because of the larger standard errors, it is only significant at 10%.

Overall, the results from the 1937 census are broadly consistent with the patterns for contemporary outcomes and indicate that municipalities with greater economic inequality fare better in terms of economic outcomes and public good provision, while those with greater political inequality do worse.

3.5.3 Corroborating the Mechanism

The results presented so far are the opposite of much of the recent literature on underdevelopment in Latin America and also inconsistent with the literature in economics emphasizing the negative effects of inequality on economic growth working through either credit market mechanisms or political economy. In the Introduction, we suggested a potential interpretation for these patterns based on Bates's (1981) seminal work on Africa. Bates showed how greater land inequality in Kenya relative to Ghana led to better policies and outcomes, because it prevented politicians from pursuing highly distortionary policies, leading to the collapse of agricultural markets in many African countries. We argued that in weakly institutionalized polities such as post-colonial Africa or 19th-century Colombia, economic inequality may be a useful counterbalance against the unchecked power of political elites.

Is there any way to corroborating this story? In the next section, we will document that politicians in Cundinamarca indeed appear to have used their political power to amass very significant wealth. Another way of checking our story is to distinguish between the land gini (land inequality among landowners) and the overall land gini (inequality among all families) as described in Section 3.3. In Table 8 we repeat our main regressions including the land

gini together with the overall land gini. We only show the specifications with the standard geographic controls and the specification with the extended set of controls (quartic in distance to Bogotá and average land value). In all of the regressions, we drop the overlap measure, since it is almost always insignificant and not central to this discussion. Panel A of the table shows the long-term outcomes, while Panel B is for medium-term outcomes.

The overall picture that emerges is very interesting. In all cases, a higher land gini is associated with better outcomes both in the long run and in the medium run. In contrast, overall land inequality has the opposite sign, though it is typically insignificant. Political concentration maintains its negative effect on long-run and medium-run outcomes and is typically significant. Therefore, the results in this table suggest that what matters is not overall inequality or poverty (as would be the case in models with credit market constraints), but the extent of inequality among landowners. This is consistent with the interpretation that better economic outcomes emerge when there exists a group of significant landowners that can counterbalance the effect of politicians.

3.6 Political Power and Land Accumulation

The evidence presented so far established a range of interesting correlations between historical variables and the economic development of different municipalities in Cundinamarca. While we are unable to conclude that these correlations correspond to the causal effects of economic and political inequality on economic development, they suggest some interesting patterns that need to be investigated further. One possible area of study is to see whether various first-order mechanisms via which political power might affect economic outcomes are present. In particular, is it the case that individuals with greater political power are able to use this for their own economic benefit?

The data suggests that both for 1879 and 1890 landowners with political power have on average more valuable land plots than non-politician landowners. For 1879, landholdings of a non-politician landowner were worth $1770 on average while the average was $3022 for landowning politicians. The corresponding figures for 1890 are $2915 and $5726 respectively. The same pattern applies when we look at the percentage change in land value between the two *catastros*.

While the value of land for non-politician landowners increased on average 99% between 1879 and 1890, plots for politicians increased, on average, 209%.[32]

More interesting than this cross-sectional comparison would be to investigate whether politicians increased their land holdings (or the value of their land) more than other landowners and by how much. We are able to do this by using our micro data. In particular, we restrict the sample to landowners that were present in both censuses and investigate whether those that have held political power saw the value of their lands increase. We measure the extent of political power by the number of years that an individual was in power between 1879 and 1890 (thus creating a continuous measure of political power). We denote this measure by n_{mi}, the number of years that individual i was in power in municipality m. We start with the simple OLS regression of the form

$$\Delta v_{mi} = \lambda n_{mi} + \mathbf{x}'_m \boldsymbol{\mu} + \varepsilon_{mi}, \tag{3.3}$$

where the dependent variable Δv_{mi} is the percentage change in the value of land held by landowner i in municipality m. The coefficient of interest is λ, which measures the relationship between the number of years the politician has been in power, n_{mi}, and the change in land value. Once again $\mathbf{x}_m$ refers to a vector of control variables, all of them defined at the municipality level (since we do not observe any individual characteristics). Also ε_{mi} is an error term with the usual properties.

The results of this exercise are reported in the first three columns of Table 9. The first column does not include any geographic controls. The second column includes the standard geographic controls, while the third column also adds a full set of municipality fixed effects (so that identification comes only by comparing politicians and landowners within each municipality). Panel A of this table reports the results of this regression on a balanced panel consisting of 6391 individuals that were landowners both in 1879 and in 1890. When we include geographic controls, the sample is down to 6156 landowners. Columns 1-3 show that one more year in power is associated with approximately 50% higher land values, which is a very large effect. The estimates in all three columns are highly statistically significant. This estimate suggests that an individual that remains in power for four years increases the value of his land holdings

[32] Since we do not have a price index for this period, all of these changes are nominal.

by 200% relative to other landowners. This is truly a large effect and shows how important political power appears to have been in 19th century Cundinamarca.

Panel B of Table 9, on the other hand, focuses on within-politician variation, and restricts the sample to a balanced panel of individuals that were landowners in both states and a politician at some date in-between. This leaves us with a sample of 560 individuals, out of which 32 are lost when we restrict the sample to municipalities for which we have all the geographic controls. In this case again, there is a positive association between number of years in power and the change in land value in both columns, though this relationship is now only significant at 10%. While the relationship is slightly imprecise, the magnitude of the effect continues to be large. An additional year in power is associated with an additional increase in land value of 29 percentage points.[33]

The effect of political power on land values may be different for different politicians. For example, some politicians may be more corrupt than others, or some politicians may focus their energy in self-enrichment in other spheres of economic life. To investigate this issue we estimate standard quantile regressions (Koenker and Bassett, 1978). In particular, we report regressions from the quantile regressions of the form:

$$\Delta v_{mi} = \lambda(\tau) n_{mi} + \mathbf{x}'_m \boldsymbol{\mu}(\boldsymbol{\tau}) + \varepsilon_{mi}(\tau), \tag{3.4}$$

where τ refers to the quantile in question. This regression estimates a separate vector of coefficients, $\lambda(\tau)$ and $\boldsymbol{\mu}(\boldsymbol{\tau})$, for each quantile, indicating how political power has different effects depending on the (residual) distribution of changes in land value of the politician. Given the moderate number of observations we have (approximately 6000 in Panel A and only 528 in Panel B), we look at non-extreme quantiles, 0.15, 0.25, ..., 0.85.

Consistent with our expectations, we find much larger effects of political power on land value changes at higher quantiles. For example, in Panel A, while the effect at the median is 0.27 (standard error= 0 .02), the effect at the 75th percentile is 0.65 (standard error =0.04) and at the 85th percentile it is even significantly larger, 1.02 (standard error = 0.0.7). These

[33] In some sense, the difference in the magnitudes between the two Panels corresponds to the difference in "intensive" and "extensive" margins. Panel B only exploits the intensive margin, the within-politician variation, and thus has a lower effect of an additional year in power on land values, whereas Panel A includes the sum of the intensive and extensive margins.

results are also plotted in Figure 9, which shows the monotonically increasing effect as we look at higher quantiles. The results in Panel B confirm the same pattern.

Our interpretation of these is that those with political power are able to amass greater economic wealth, either by acquiring more land or by increasing the value of their land, and this effect is especially pronounced when we look at heterogeneity among landowners. Naturally, these micro-data regressions do not establish causality either, and part of the effect may reflect unobserved heterogeneity (for example, those with greater ability being selected into politics and also able to increase the value of their lands). Nevertheless, we find these results encouraging for hypotheses emphasizing the importance of political power and political inequality. In addition, we believe these results are very consistent with the idea that in places where their power was not checked by landed elites, politicians were able to use their power in socially inefficient ways, possibly by expropriating land and or by targeting public services, such as roads, to increase the value of the land they held.

3.7 The Dynamics of Wealth and Political Power

As a final check on the relationship between political power and economic wealth, we also investigate whether politicians are likely to become landowners and how this compares to the likelihood of economically wealthy individuals becoming politicians. In particular, let $r_{it} \in \{0,1\}$ be an indicator for whether individual i is a rich landowner at time t, while $p_{it} \in \{0,1\}$ is an indicator for whether individual is a politician at time t. We also use $p^o_{it} = 1$ to denote an individual who is a politician but not a rich landowner at time t, and $r^o_{it} = 1$ to denote a rich landowner at time t who is not a politician. Finally, $l_{it} = 1$ denotes an individual who is neither a rich landowner nor a politician.

We are interested in the likelihood that a politician who was not a rich landowner becomes a rich landowner, which can be expressed as $\Pr[r_{it+1}|p^o_{it}]$. However, rather than looking at this conditional probability, it is more natural and informative to normalize this with the probability that an individual who is neither a politician or a rich landowner becomes a rich landowner,

$\Pr[r_{it+1}|l_{it}]$. Consequently, the first measure of interest is

$$\frac{\Pr[r_{it+1}|p^o_{it}]}{\Pr[r_{it+1}|l_{it}]}.$$

Our main interest is to compare this ratio to the likelihood that a rich landowner who was not a politician initially became a politician, which is defined similarly as

$$\frac{\Pr[p_{it+1}|r^o_{it}]}{\Pr[p_{it+1}|l_{it}]}.$$

Finally, we can also look at

$$\frac{\Pr[r_{it+1}|r^o_{it}]}{\Pr[r_{it+1}|l_{it}]} \text{ and } \frac{\Pr[p_{it+1}|p^o_{it}]}{\Pr[p_{it+1}|l_{it}]}$$

to measure persistence in the landowning and political status again for comparison.[34]

Table 10 shows 2×2 matrices of these ratios for Cundinamarca and for the nine provinces (which are made up of the municipalities we studied until now). We compute the standard errors for these ratios by bootstrapping.[35] The results in Table 10 show that in Cundinamarca as a whole and in eight out of the nine provinces, the probability of transitioning from being a politician to landowner is greater than the probability of transitioning from being a landowner to a politician (in both cases normalized by the probability of transition of a non-landowner non-politician). Moreover, this difference is statistically significant (at 5% or less) for the whole of Cundinamarca and for the four larger provinces. This finding is also consistent with our interpretation that political power is important in obtaining economic rents and resources. In contrast, there seems to be a smaller role of wealth in enabling individuals to become politicians. This pattern therefore strengthens our overall conclusion that a more systematic study of the consequences of political power and of political inequality on economic outcomes and economic development is necessary.[36]

[34] There are naturally many other ratios of conditional probabilities we can look at, for example,

$$\frac{\Pr[r_{it+1}|r_{it}]}{\Pr[r_{it+1}|l_{it}]} \text{ and } \frac{\Pr[r_{it+1}|p_{it}]}{\Pr[r_{it+1}|l_{it}]},$$

but the four that we focus on are sufficiently informative for our purposes.

[35] The standard errors were computed via non-parametric bootstrapping with 500 replications.

[36] One caveat is that when we look at individuals that are both landowners and politicians in 1879, they have the highest probability of (still) being a landowner or remaining a politician in 1890.

3.8 Conclusions

What is the effect of economic inequality on long-run economic development? This question is central for many theories of comparative development and has gained further attention by recent emphasis from Engerman and Sokoloff (1997) and others that the roots of the different economic performances of the north and south of the American continent are in their different levels of economic inequality in the 19th century. Most existing investigations of this question look at cross-country data (or cross-state and cross-village data) and do not distinguish between economic and political inequality. However, many theories suggest that economic inequality is likely to lead to political inequality, so that political power should be concentrated in the hands of those who are rich, while other equally plausible theories suggest that political inequality, the concentration of political power in the hands of a few, is likely to lead to economic inequality as the politically-powerful use politics to become richer. Consequently, we expect the Latin American societies in the 19th century not only to be economically more unequal, but also to feature greater levels of concentration of political power in the hands of a few. Nevertheless, neither existing theoretical discussions nor existing empirical studies distinguish the potentially different roles of economic and political inequality. Understanding whether it is economic or political inequality that matters for economic development is important both to understand the mechanics of long-run development and also because outside of the Americas, there are instances of societies with relatively equal distributions of economic resources but high degrees of political inequality (e.g., many countries in the sub-Saharan Africa and East Asia).

In this paper, we used unique data from 19th century Colombia to undertake a first investigation of the relative and potentially distinct roles of economic and political inequality on long-run development. Using land censuses (*catastros*) from 1879 and 1890, we constructed measures of land inequality (land gini) and we collected information on the identity of mayors in each of the municipalities in Cundinamarca from which we constructed an index of political concentration.

Our data indeed confirm that Cundinamarca is more unequal than the Northern United States in the 19th century. However, perhaps somewhat surprisingly, we find that Cundinamarca is more equal than the US South. Even more surprising, we find that across Cundinamarca municipalities there is a negative association between political and economic inequality.

Though perhaps political inequality can be conceptualized and measured in other ways, what we find certainly suggests the conventional wisdom is too simplistic. Moreover, and again very differently from the recently-emerging consensus about the sources of comparative development within the Americas, we find a positive association between economic (land) inequality and long-run development. Municipalities with greater land inequality are those that supply more public goods and are more educated and urbanized today. In contrast, we find a relatively robust negative relationship between political inequality and economic outcomes. We also showed that politically powerful individuals appear to have been much more likely to become landowners and to have increased the value of their lands substantially.

Our interpretation of these results is that in weakly institutionalized polities, such as 19th-century and 20th-century Colombia, economic inequality may be a useful counterbalance against the most rapacious policies that may be pursued by political elites. This interpretation is consistent both with the negative effect of political concentration (inequality) on long and medium-term outcomes in Cundinamarca, with the evidence presented by Bates (1981) for Africa, and with the additional results we presented above, suggesting that it is inequality among landowners, not overall inequality, that has the positive effect on various economic outcomes. Although this interpretation is consistent with our findings and plausible in view of the experiences of other countries with weakly institutionalized polities, it is very different from the conventional wisdom in the studies of underdevelopment in Latin America and from the conclusions of the recent economic literature focusing on the effects of inequality on economic growth. Nevertheless, our results do not provide a direct test of this interpretation and whether this perspective is useful for understanding the relationship between inequality and economic growth and the development path of Latin America remains an open research question.

It should also be emphasized that all of the results presented in this paper, striking though they may be, are historical correlations. While we control for a variety of geographic factors and other municipality characteristics, we cannot be sure that these associations correspond to the causal effect of land inequality and political concentration on long-run economic development. Nevertheless, given the robustness and the magnitudes of these patterns, they call for more nuanced theories of comparative development. At the very least, theories that emphasize the importance of economic inequality should be able to explain these robust correlations.

Therefore, irrespective of whether the correlations presented here have a causal component and of whether the interpretation we offer is the correct explanation of the patterns observed in Cundinamarca, the evidence strongly suggests that in addition to the emphasis on economic inequality, there should be more research to understand the effects of politics and political inequality on economic outcomes in comparative development.

Table 1
Descriptive Statistics

	All Municipalities	Low Land Inequality	High Land Inequality	Low Political Concentration	High Political Concentration
	(1)	(2)	(3)	(4)	(5)
Land Gini	0.65	0.57	0.73	0.66	0.65
	(0.10)	(0.06)	(0.05)	(0.09)	(0.10)
Overall Land Gini	0.86	0.83	0.90	0.86	0.87
	0.07	0.07	0.05	0.07	0.07
Contemporary Land Gini	0.67	0.63	0.73	0.69	0.66
	(0.09)	(0.07)	(0.08)	(0.09)	(0.09)
Political Concentration Index	-0.56	-0.53	-0.57	-0.64	-0.48
	(0.10)	(0.08)	(0.10)	(0.06)	(0.06)
Overlap	0.07	0.07	0.06	0.05	0.08
	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)
Secondary School Enrollment	0.58	0.52	0.65	0.60	0.56
	(0.11)	(0.09)	(0.09)	(0.11)	(0.10)
Primary School Enrollment	0.83	0.83	0.86	0.84	0.84
	(0.06)	(0.05)	(0.07)	(0.08)	(0.05)
Urbanization (1993)	0.31	0.22	0.41	0.35	0.26
	(0.23)	(0.13)	(0.28)	(0.26)	(0.20)
Unsatisfied Basic Needs	0.40	0.44	0.33	0.37	0.42
	(0.14)	(0.13)	(0.11)	(0.14)	(0.14)
Literacy Rate	0.40	0.40	0.41	0.42	0.38
	(0.12)	(0.12)	(0.10)	(0.13)	(0.10)
Urbanization (1937)	0.17	0.12	0.20	0.20	0.14
	(0.18)	(0.10)	(0.18)	(0.22)	(0.13)
Share of Buildings without Access to Public Services	0.91	0.95	0.88	0.88	0.94
	(0.12)	(0.07)	(0.13)	(0.16)	(0.08)
Distance to Bogota	88.23	93.49	77.96	85.84	90.53
	(45.00)	(38.74)	(48.35)	(44.28)	(46.01)

Values are averages with standard deviations in parentheses. Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Overall Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros* taking into account landless families (see text for details). Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both landowners and politicians (average for 1879 and 1890). Contemporary Land Gini corresponds to gini coefficient of land value for 2002 constructed from IGAC *catastros*. Secondary School Enrollment is constructed from the 1993 Census as fraction of kids between 12 and 17 years old attending school. Primary School Enrollment also constructed from the 1993 Census as fraction of kids between 7 and 11 years old attending school. Unsatisfied Basic Needs constructed from the 1993 Census as fraction of households with unfulfilled basic needs (see text for details).

Urbanization figures constructed from the corresponding year censuses as fraction of total population leaving in urban areas. Literacy Rate constructed from the 1937 Census as number of literate individuals over total population. Fraction of Buildings without Access to Public Services also constructed from 1937 Census as number of buildings without access to electricity, water and sewage. Distance to Bogota is measured in kms. Column 1 reports figures for all municipalities. Column 2 reports figure for the 49 municipalities with land gini below its median value while column 3 reports figures for the 49 municipalities with land gini above its median value. Column 4 reports figures for the 56 municipalities with Political Concentration Index below its median value and column 5 reports figures for the 56 municipalities with Political Concentration Index above its median value.

Table 2
Correlation Matrix

	Land Gini	Overall Land Gini	Contemporary Land Gini	Political Concentration Index	Overlap	Secondary School Enrollment	Urbanization (1993)	Unsatisfied Basic Needs
Land Gini	1.00							
Overall Land Gini	0.48	1.00						
Contemporary Land Gini	0.60	0.23	1.00					
Political Concentration Index	-0.25	-0.05	-0.26	1.00				
Overlap	-0.08	-0.05	-0.04	0.43	1.00			
Secondary School Enrollment	0.54	0.16	0.56	-0.30	-0.09	1.00		
Urbanization (1993)	0.47	0.11	0.59	-0.30	-0.10	0.64	1.00	
Unsatisfied Basic Needs	-0.56	0.09	-0.49	0.37	-0.03	-0.67	-0.47	1.00

Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the catastros. Overall Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the catastros taking into account landless families (see text for details). Contemporary Land Gini corresponds to gini coefficient of land value for 2002 constructed from IGAC catastros. Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both landowners and politicians (average for 1879 and 1890). Secondary School Enrollment is constructed from the 1993 Census as fraction of kids between 12 and 17 years old attending school. Urbanization constructed from the 1993 census as fraction of total population leaving in urban areas. Unsatisfied Basic Needs constructed from the 1993 Census as fraction of households with unfulfilled basic needs (see text for details).

Table 3
Land Inequality in U.S. States (1860)

State	Land Gini	No. Observations	Average Land Value
Panel A. Northern States			
Connecticut	0.34	259	3,421
Illinois	0.50	1,563	2,659
Indiana	0.47	5,020	2,534
Iowa	0.48	825	2,066
Kansas	0.41	623	1,702
Maryland	0.49	534	2,097
Michigan	0.55	1,516	1,544
Minnesota	0.55	379	983
Missouri	0.52	1,180	1,745
New Hampshire	0.35	807	1,860
New Jersey	0.35	362	5,274
New York	0.42	4,043	3,888
Ohio	0.38	851	3,381
Pennsylvania	0.47	2,465	3,722
Vermont	0.43	147	3,327
Wisconsin	0.44	544	1,748
Total Northern States	0.47	20,821	2,820
Panel B. Southern States			
Alabama	0.73	1,005	3,223
Arkansas	0.70	434	3,048
Florida	0.60	65	2,162
Georgia	0.63	818	3,459
Louisiana	0.83	225	18,197
Mississippi	0.69	707	4,491
North Carolina	0.60	391	2,548
South Carolina	0.63	524	4,293
Tennessee	0.75	465	5,986
Texas	0.70	551	3,340
Virginia	0.71	42	3,555
Total Southern States	0.72	5,055	4,514
Total U.S. States	0.58	25,876	3,333

The land ginis for the US south and north were constructed from the complete 'Gallman-Parker and Bateman-Foust samples, respectively, from the micro data of 1860 US 'census.

Table 4
OLS Regressions for Long Term Oucomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A	*Dependent Variable: Secondary School Enrollment*									
Land Gini	0.61	0.48					0.44	0.44	0.28	0.16
	(0.09)	(0.10)					(0.09)	(0.09)	(0.11)	(0.10)
Political Concentration Index			-0.36	-0.35			-0.27	-0.27	-0.22	-0.22
			(0.11)	(0.10)			(0.10)	(0.11)	(0.11)	(0.11)
Overlap					-0.27	-0.43		-0.01	-0.07	-0.13
					(0.29)	(0.24)		(0.23)	(0.19)	(0.19)
Contemporary Land Gini									0.38	0.37
									(0.13)	(0.11)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Extended
Observations	92	92	94	93	93	93	92	92	92	92
R-squared	0.30	0.45	0.09	0.37	0.01	0.32	0.50	0.50	0.54	0.61
Panel B	*Dependent Variable: Primary School Enrollment*									
Land Gini	0.19	0.11					0.10	0.10	0.12	0.05
	(0.06)	(0.05)					(0.05)	(0.05)	(0.06)	(0.05)
Political Concentration Index			-0.08	-0.09			-0.07	-0.11	-0.11	-0.08
			(0.07)	(0.05)			(0.05)	(0.06)	(0.06)	(0.06)
Overlap					0.04	0.02		0.17	0.18	0.12
					(0.16)	(0.12)		(0.14)	(0.14)	(0.13)
Contemporary Land Gini									-0.04	0.00
									(0.07)	(0.06)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Extended
Observations	92	92	94	93	93	93	92	92	92	92
R-squared	0.09	0.52	0.01	0.51	0.00	0.49	0.53	0.54	0.54	0.60

Robust standard errors in parentheses. Secondary School Enrollment is constructed from the 1993 Census as fraction of kids between 12 and 17 years old attending school. Primary School Enrollment also constructed from the 1993 Census as fraction of kids between 7 and 11 years old attending school. Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both rich landowners and politicians (average for 1879 and 1890). Rich Landowners are defined as those with landholdings among the top 25% most valuable plots. Contemporary Land Gini corresponds to gini coefficient of land value for 2002 constructed from IGAC *catastros*. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. A quartic in distance to Bogota and land value per square km (average for 1879 and 1890) are included in Column 10.

Table 5

OLS Regressions for Long Term Oucomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A	*Dependent Variable: Urbanization in 1993*									
Land Gini	1.11	0.79					0.71	0.71	0.21	0.06
	(0.23)	(0.21)					(0.21)	(0.20)	(0.23)	(0.23)
Political Concentration Index			-0.77	-0.57			-0.44	-0.33	-0.15	-0.26
			(0.26)	(0.27)			(0.29)	(0.32)	(0.28)	(0.27)
Overlap					-0.65	-1.07		-0.51	-0.73	-0.32
					(0.66)	(0.55)		(0.65)	(0.56)	(0.46)
Contemporary Land Gini									1.23	0.97
									(0.28)	(0.28)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Extended
Observations	92	92	94	93	93	93	92	92	92	92
R-squared	0.22	0.36	0.09	0.31	0.01	0.30	0.38	0.39	0.50	0.6
Panel B	*Dependent Variable: Unsatisfied Basic Needs*									
Land Gini	-0.72	-0.49					-0.44	-0.44	-0.35	-0.21
	(0.12)	(0.12)					(0.11)	(0.11)	(0.13)	(0.11)
Political Concentration Index			0.51	0.36			0.28	0.41	0.38	0.33
			(0.12)	(0.11)			(0.11)	(0.12)	(0.12)	(0.12)
Overlap					-0.11	-0.03		-0.62	-0.58	-0.6
					(0.35)	(0.26)		(0.25)	(0.23)	(0.24)
Contemporary Land Gini									-0.23	-0.33
									(0.13)	(0.14)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Extended
Observations	92	92	94	93	93	93	92	92	92	92
R-squared	0.31	0.57	0.14	0.51	0.00	0.45	0.61	0.63	0.64	0.69

Robust standard errors in parentheses. Urbanization constructed from the 1993 census as fraction of population living in urban areas. Unsatisfied Basic Needs constructed from the 1993 Census as fraction of households with unfulfilled basic needs (see text for details). Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both rich landowners and politicians (average for 1879 and 1890). Rich Landowners are defined as those with landholdings among the top 25% most valuable plots. Contemporary Land Gini corresponds to gini coefficient of land value for 2002 constructed from IGAC *catastros*. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. A quartic in distance to Bogota and land value per square km (average for 1879 and 1890) are included in Column 10.

Table 6

OLS Regressions for Medium Term Oucomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A	*Dependent Variable: Literacy Rate in 1937*								
Land Gini	0.27	0.09					0.04	0.04	0.00
	(0.11)	(0.11)					(0.11)	(0.11)	(0.13)
Political Concentration Index			-0.31	-0.27			-0.27	-0.30	-0.29
			(0.11)	(0.12)			(0.12)	(0.12)	(0.14)
Overlap					-0.16	-0.19		0.17	0.21
					(0.31)	(0.28)		(0.29)	(0.34)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Extended
Observations	97	91	99	92	98	92	91	91	91
R-squared	0.05	0.26	0.06	0.30	0.00	0.26	0.30	0.30	0.31
Panel B	*Dependent Variable: Urbanization in 1937*								
Land Gini	0.42	0.31					0.24	0.24	-0.02
	(0.13)	(0.13)					(0.12)	(0.12)	(0.15)
Political Concentration Index			-0.43	-0.47			-0.42	-0.37	-0.32
			(0.20)	(0.24)			(0.25)	(0.27)	(0.31)
Overlap					-0.67	-0.73		-0.24	0.16
					(0.37)	(0.40)		(0.39)	(0.36)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Extended
Observations	98	92	100	93	99	93	92	92	92
R-squared	0.08	0.14	0.06	0.18	0.03	0.13	0.20	0.20	0.35

Robust standard errors in parentheses. Literacy Rate constructed from the 1937 Census as number of literate individuals over total population. Urbanization constructed from 1937 Census as fraction of population living in urban areas. Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both landowners and politicians (average for 1879 and 1890). Rich Landowners are defined as those with landholdings among the top 25% most valuable plots. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. A quartic in distance to Bogota and land value per square km (average for 1879 and 1890) are included in Column 9.

Table 7
OLS Regressions for Medium Term Oucomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A	*Dependent Variable: Fraction of Buildings without Access to Public Services*								
Land Gini	-0.41	-0.23					-0.17	-0.16	-0.03
	(0.09)	(0.08)					(0.07)	(0.07)	(0.08)
Political Concentration Index			0.46	0.41			0.38	0.35	0.35
			(0.14)	(0.17)			(0.17)	(0.20)	(0.23)
Overlap					0.55	0.61		0.17	-0.07
					(0.26)	(0.22)		(0.23)	(0.21)
Geographic Controls	No	Yes	No	Yes	No	Yes	Yes	Yes	Extended
Observations	97	91	98	92	98	92	91	91	91
R-squared	0.13	0.25	0.16	0.33	0.03	0.26	0.36	0.36	0.44

Robust standard errors in parentheses. Fraction of Buildings without Access to Public Services constructed from the 1937 Census as number of buildings without access to electricity, water and sewage. Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Overlap is measured as fraction of rich landowners and politicians that are both landowners and politicians (average for 1879 and 1890). Rich Landowners are defined as those with landholdings among the top 25% most valuable plots. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. A quartic in distance to Bogota and land value per square km (average for 1879 and 1890) are included in Column 9.

Table 8
OLS Regressions for Long and Medium Term Oucomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Long Term Outcomes	*Dependent Variable:*							
	Secondary School Enrollment		Primary School Enrollment		Urbanization (1993)		Unsatisfied Basic Needs	
Land Gini	0.30	0.14	0.20	0.13	0.26	0.07	-0.50	-0.34
	(0.13)	(0.12)	(0.07)	(0.07)	(0.28)	(0.31)	(0.16)	(0.16)
Overall Land Gini	-0.03	0.04	-0.19	-0.15	-0.07	-0.02	0.34	0.23
	(0.13)	(0.15)	(0.08)	(0.07)	(0.28)	(0.29)	(0.17)	(0.17)
Political Concentration Index	-0.23	-0.24	-0.07	-0.06	-0.31	-0.32	0.25	0.22
	(0.09)	(0.10)	(0.05)	(0.05)	(0.25)	(0.26)	(0.10)	(0.11)
Contemporary Land Gini	0.37	0.37	-0.05	-0.02	1.19	0.95	-0.22	-0.33
	(0.13)	(0.11)	(0.07)	(0.06)	(0.29)	(0.27)	(0.14)	(0.14)
Geographic Controls	Yes	Extended	Yes	Extended	Yes	Extended	Yes	Extended
Observations	92	92	92	92	92	92	92	92
R-squared	0.54	0.60	0.55	0.61	0.49	0.60	0.64	0.67
Panel B: Medium Term Outcomes	*Dependent Variable:*							
	Literacy Rate		Urbanization (1937)		Lack of Public Services			
Land Gini	0.22	0.22	0.43	0.14	-0.28	-0.11		
	(0.13)	(0.16)	(0.15)	(0.24)	(0.08)	(0.14)		
Overall Land Gini	-0.41	-0.41	-0.43	-0.30	0.25	0.16		
	(0.17)	(0.17)	(0.21)	(0.28)	(0.14)	(0.18)		
Political Concentration Index	-0.26	-0.27	-0.41	-0.30	0.38	0.34		
	(0.12)	(0.14)	(0.24)	(0.27)	(0.17)	(0.20)		
Geographic Controls	Yes	Extended	Yes	Extended	Yes	Extended		
Observations	91	91	92	92	91	91		
R-squared	0.34	0.34	0.22	0.36	0.38	0.45		

Robust standard errors in parentheses. Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros*. Overall Land Gini is the average land value gini coefficient for 1879 and 1890 constructed from the *catastros* taking into account landless families (see text for details). Political Concentration Index measured as the negative of the number of different individuals in power between 1875 and 1895 over number of mayor appointments for which data is available. Contemporary Land Gini corresponds to gini coefficient of land value for 2002 constructed from IGAC catastros. Secondary School Enrollment is constructed from the 1993 Census as fraction of kids between 12 and 17 years old attending school. Primary School Enrollment also constructed from the 1993 Census as fraction of kids between 7 and 11 years old attending school. Unsatisfied Basic Needs constructed from the 1993 Census as fraction of households with unfulfilled basic needs (see text for details).

Urbanization figures constructed from the corresponding year censuses as fraction of total population leaving in urban areas. Literacy Rate constructed from the 1937 Census as number of literate individuals over total population. Lack of Public Services is fraction of buildings without zccess to public services constructed from 1937 Census as number of buildings without access to electricity, water and sewage. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. Extended Geographic controls include the former plus a quartic in distance to Bogota and land value per square km (average for 1879 and 1890).

Table 9

OLS and Quantile Regressions for % Change in Land Value

Panel A: Balanced Sample for all landowners. Dependent Variable is % Change in Land Value between 1879 and 1890

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS Regressions			Quantile Regression *Quantiles*								
				0.15	0.25	0.35	0.45	0.50	0.55	0.65	0.75	0.85
Number of years in power between	0.50	0.47	0.42	0.03	0.06	0.15	0.23	0.27	0.29	0.44	0.65	1.02
1879-1890	(0.09)	(0.09)	(0.08)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)	(0.04)	(0.07)
Geographic Controls	No	Yes	Extended	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6391	6156	6156	6156	6156	6156	6156	6156	6156	6156	6156	6156
R-squared/Pseudo R-squared	0.01	0.01	0.05	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02

Panel B: Balanced Sample for Landowning Politicians. Dependent Variable is % Change in Land Value between 1879 and 1890

	OLS Regressions			Quantile Regression *Quantiles*								
				0.15	0.25	0.35	0.45	0.50	0.55	0.65	0.75	0.85
Number of years in power between	0.28	0.29	0.29	0.04	0.05	0.08	0.10	0.13	0.19	0.23	0.48	0.53
1879-1890	(0.16)	(0.16)	(0.18)	(0.06)	(0.04)	(0.06)	(0.05)	(0.08)	(0.08)	(0.11)	(0.14)	(0.22)
Geographic Controls	No	Yes	Extended	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	560	528	528	528	528	528	528	528	528	528	528	528
R-squared/Pseudo R-squared	0.01	0.01	0.17	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.03

Standard Errors in parentheses. The sample in Panel A consists of individuals that appeared as landowners both in 1879 and 1890 in the same municipality. The sample in Panel B consists of individuals that appeared as landowners both in 1879 and 1890 and were politicians in any given year between 1879 and 1890. Geographic controls include Altitude (in mts above sea level), Distance to Bogota (in kms), Area (in sq. kms), Rainfall (in mms) and Year of Foundation. Extended controls in column 3 include geographic controls and municipality dummies.

Table 10
Conditional Probability Ratios

(a) Bogota

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	13.58 (1.61)	4.54 (1.26)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	1.98 (0.89)	15.66 (4.06)

(b) Choconta

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	80.70 (15.98)	22.94 (10.52)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	14.74 (7.19)	33.52 (18.87)

(c) Facatativa

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	35.44 (4.43)	16.28 (4.66)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	21.34 (11.78)	50.02 (32.16)

(d) Guaduas

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	71.33 (11.37)	23.77 (6.68)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	9.38 (3.52)	40.43 (12.58)

(e) Guatativa

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	76.04 (13.25)	23.11 (7.86)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	20.28 (9.64)	41.71 (22.75)

(f) Oriente

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	45.25 (8.47)	17.05 (7.07)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	5.93 (2.61)	36.85 (15.65)

(g) Tequendama

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	34.97 (4.28)	7.33 (2.46)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	2.58 (1.16)	27.56 (7.47)

(h) Ubate

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	39.60 (6.13)	22.63 (5.93)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	7.80 (3.62)	30.15 (15.05)

(i) Zipaquira

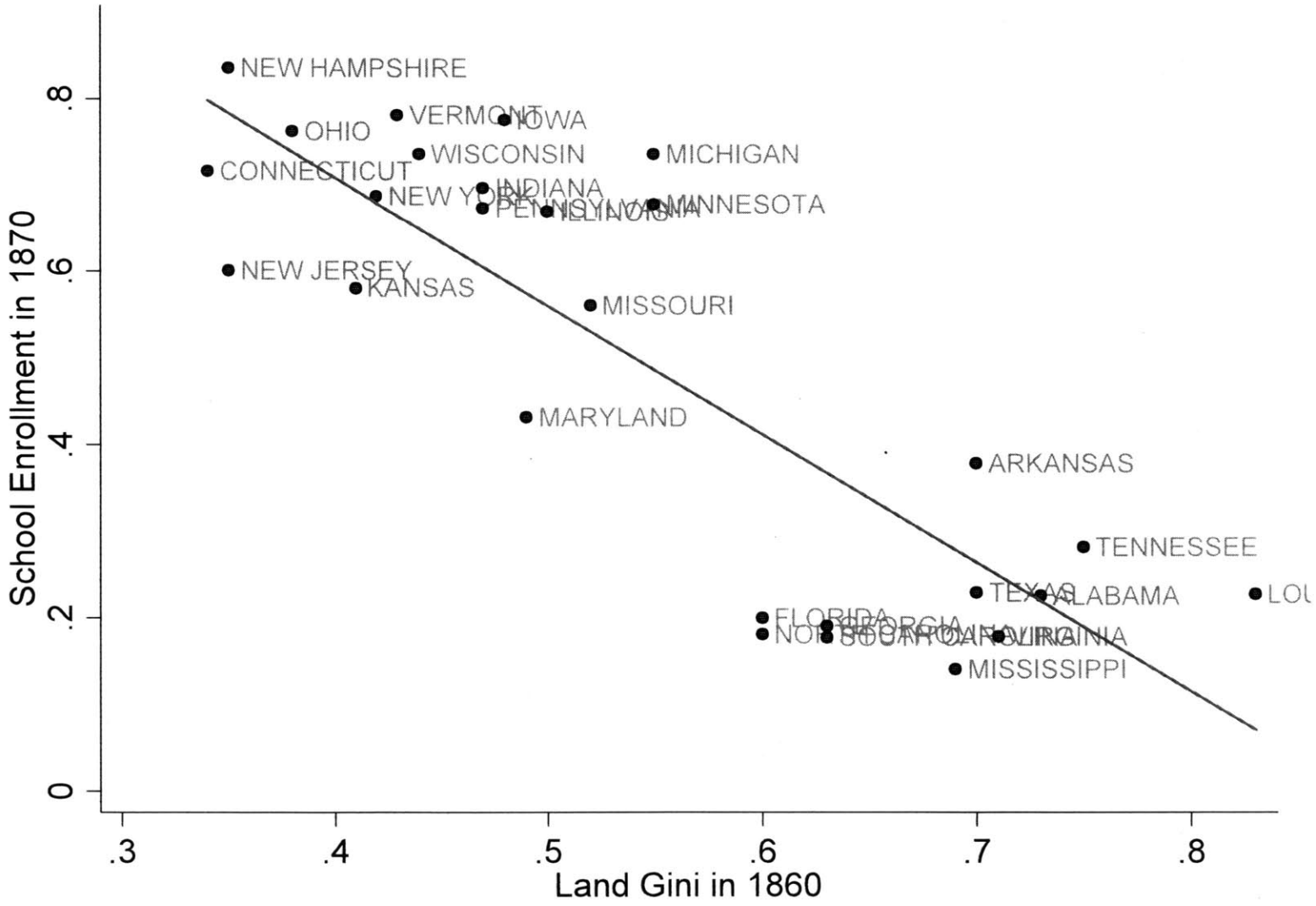
Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	32.95 (3.81)	18.01 (4.53)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	6.35 (2.36)	53.22 (18.75)

(j) Cundinamarca

Ratios	r_{it}^{o}	p_{it}^{o}
$\frac{\Pr[r_{it+1} \mid \bullet]}{\Pr[r_{it+1} \mid l_{it}]}$	39.19 (1.86)	14.55 (1.41)
$\frac{\Pr[p_{it+1} \mid \bullet]}{\Pr[p_{it+1} \mid l_{it}]}$	6.48 (0.87)	34.48 (4.25)

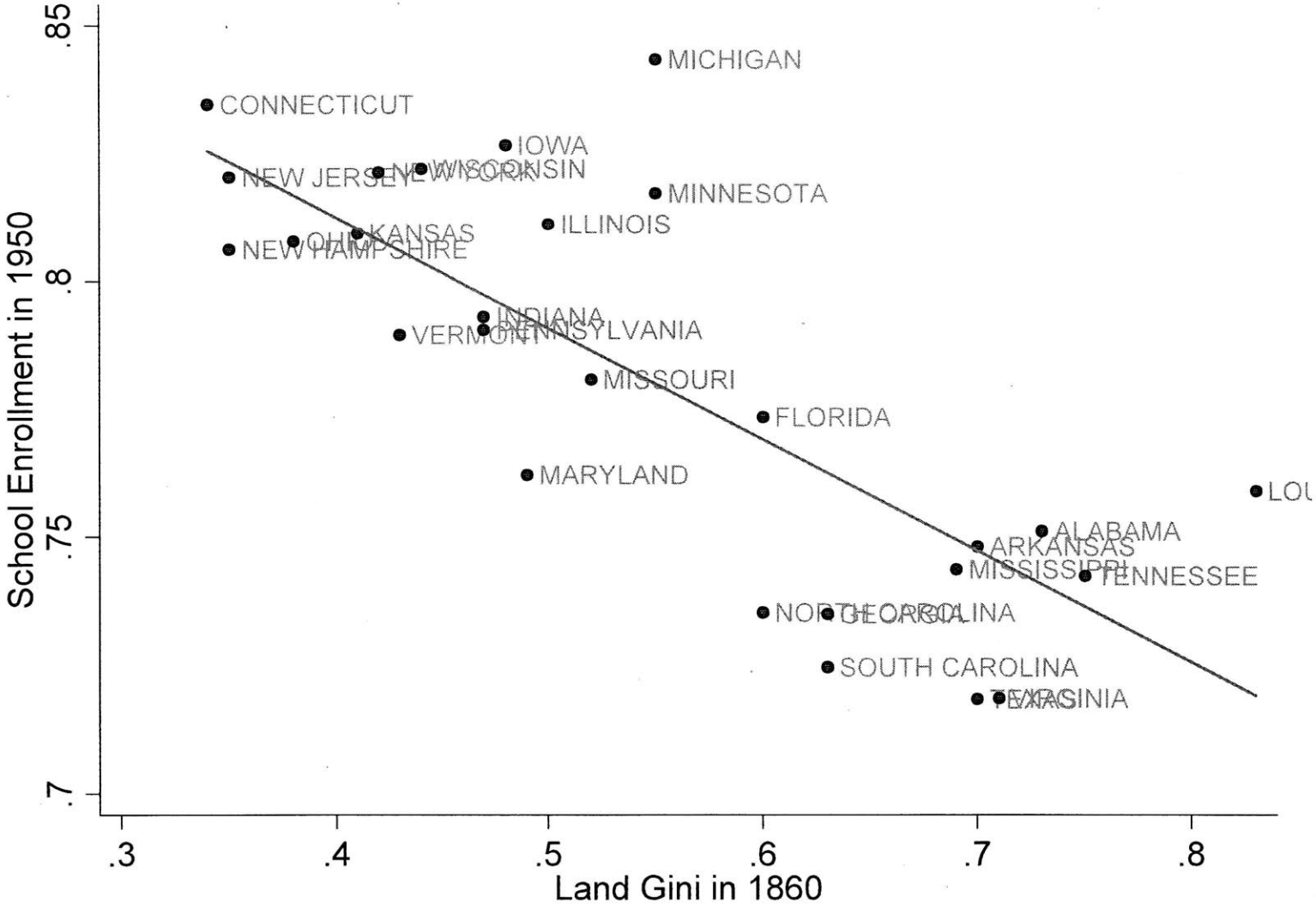
Bootstrapped Standard Errors in parentheses

Figure1
Land Gini and School Enrollment in the U.S.
(1870)



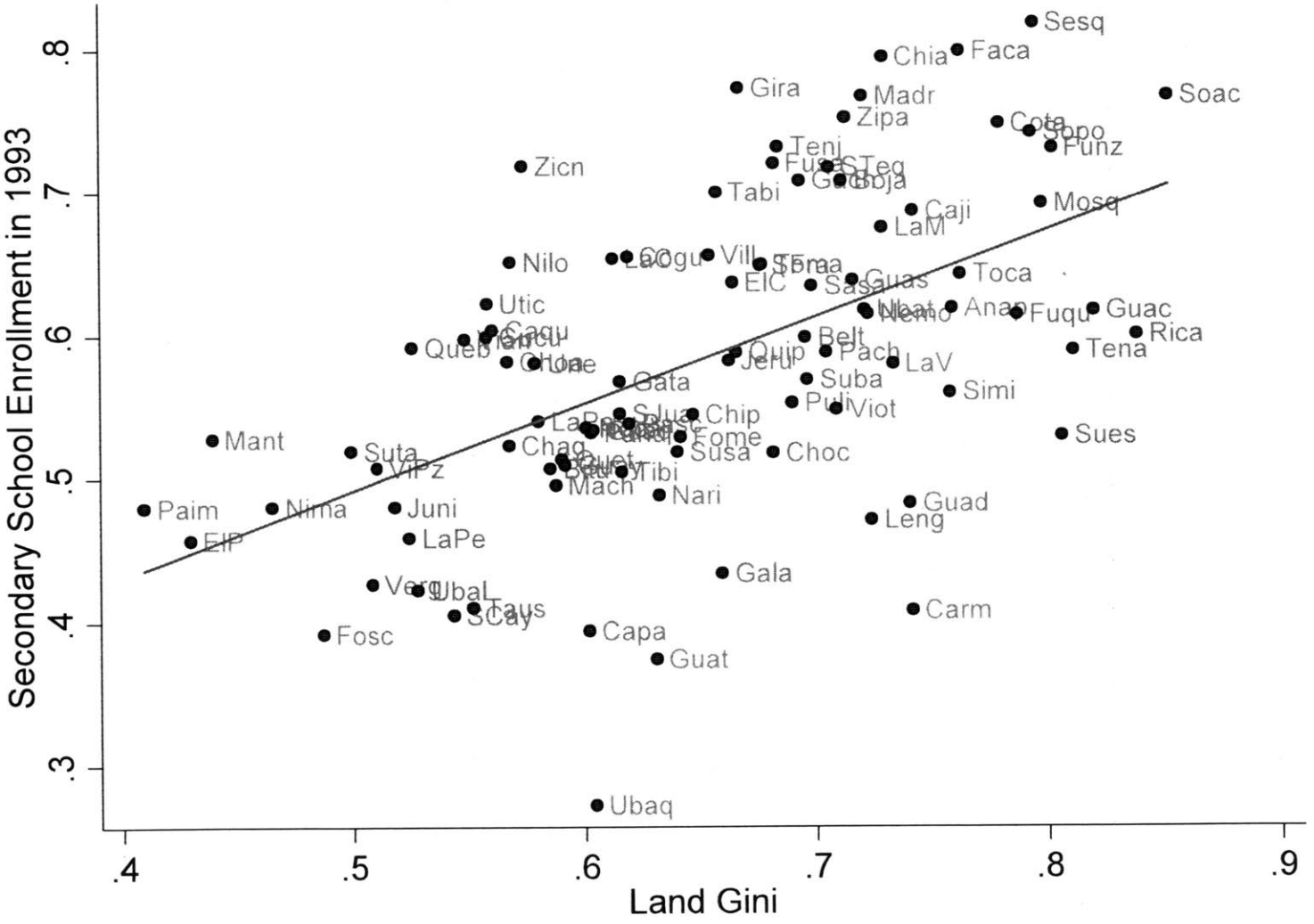
The land ginis for the US south and north were constructed from the complete Gallman-Parker and Bateman-Foust samples, respectively, from the micro data of 1860 US census. School enrollment constructed from the 1870 Census as Number of persons attending school over population between 5 and 18 years old.

Figure2
Land Gini and School Enrollment in the U.S.
(1950)



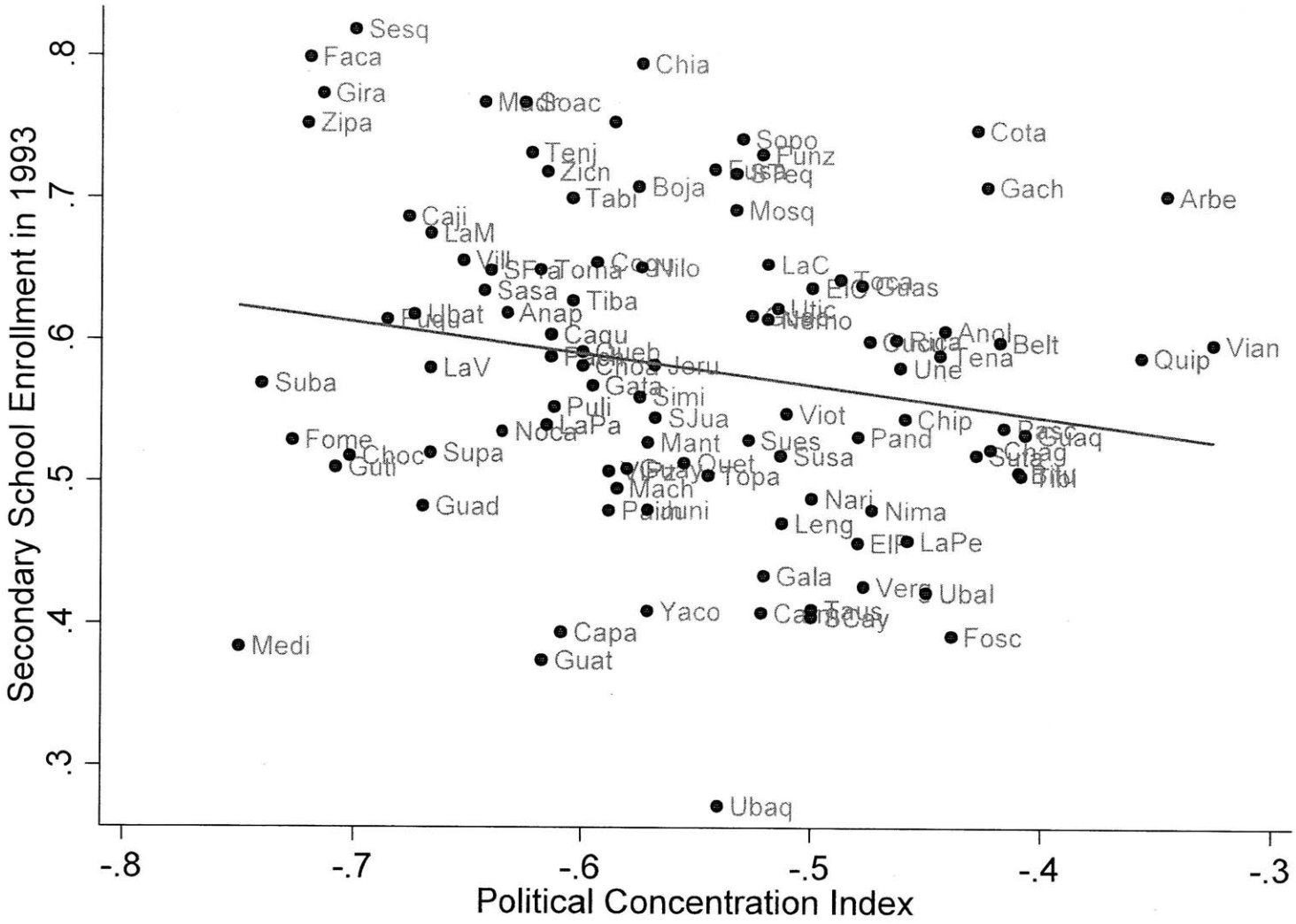
The land ginis for the US south and north were constructed from the complete Gallman-Parker and Bateman-Foust samples, respectively, from the micro data of 1860 US census. School enrollment constructed from the 1950 Census as Number of persons between 5 and 18 years old attending school over total population between 5 and 18 years old.

Figure 3
Land Gini and Secondary School Enrollment in Cundinamarca



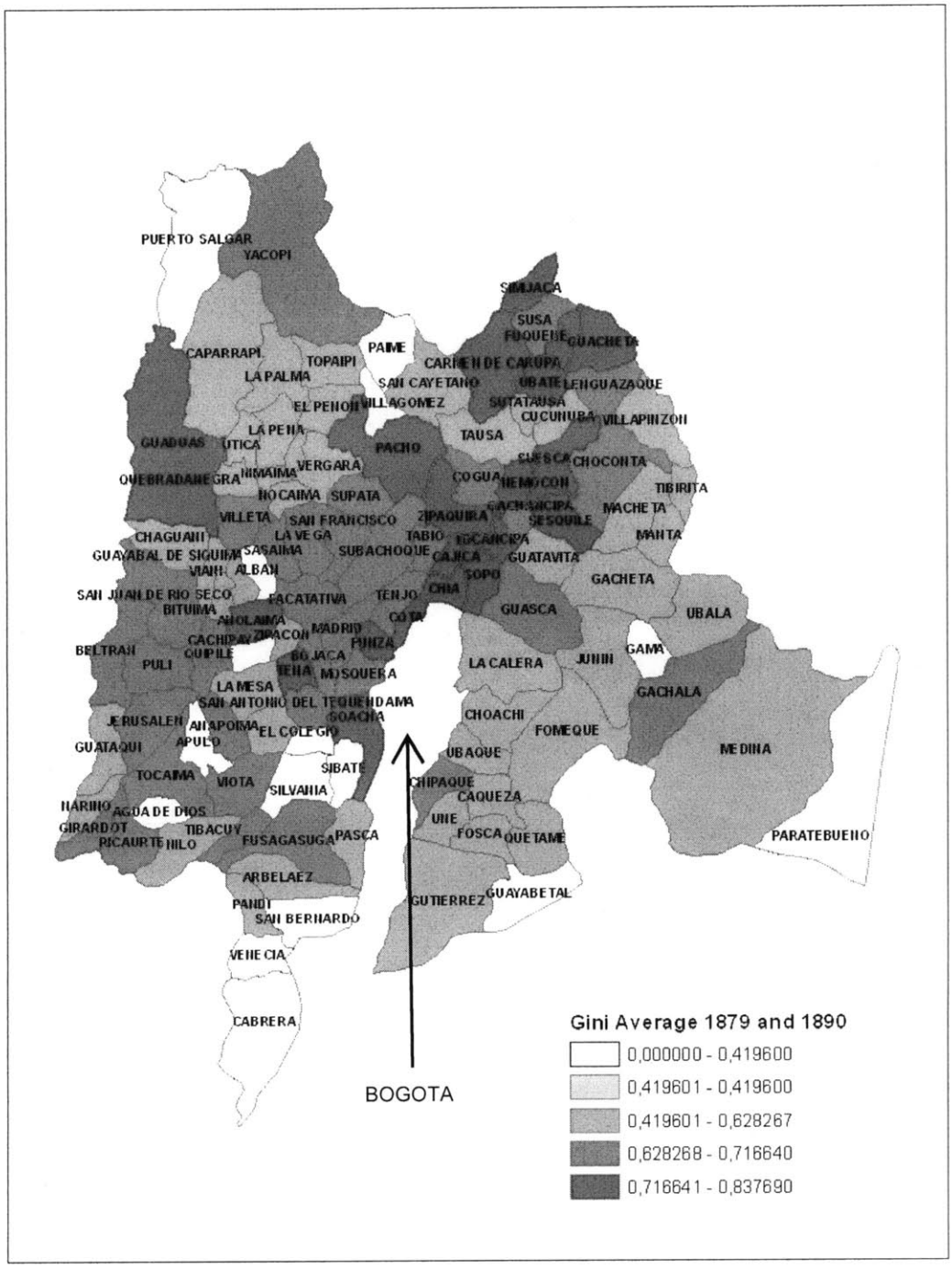
Land gini is the average gini coefficient for 1879 and 1890 constructed from the *catastros*. Secondary School Enrollment constructed from the 1993 Census as fraction of kids between 12 and 18 years old attending school.

Figure 4
Political Concentration and Secondary School Enrollment in Cundinamarca



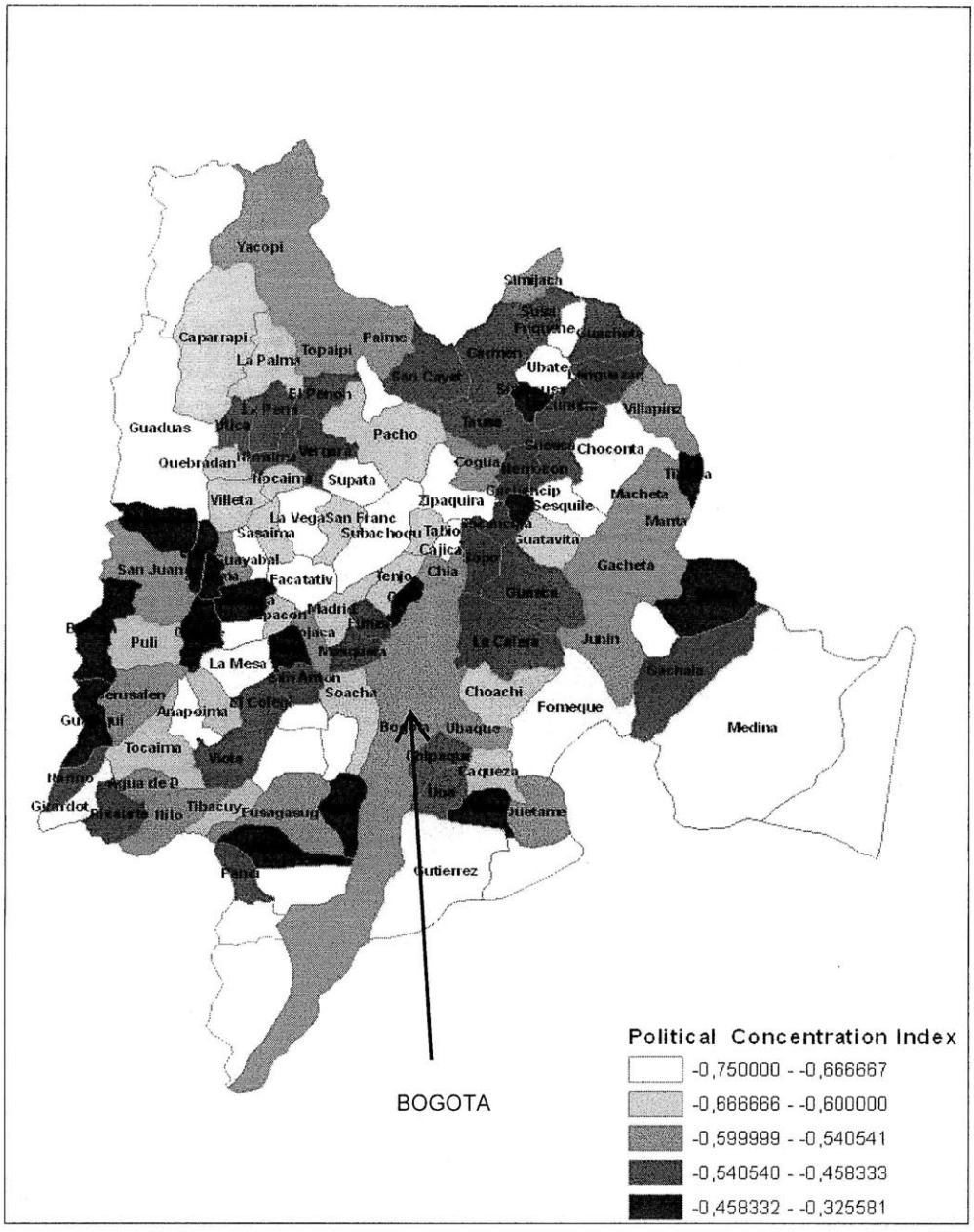
Political Concentration Index defined as the negative of the number of different individuals in power between 1875 and 1895, over the number of mayor appointments for which data is available. Secondary School Enrollment constructed from the 1993 Census as fraction of kids between 12 and 18 years old attending school.

Figure 5
Land Gini in Cundinamarca



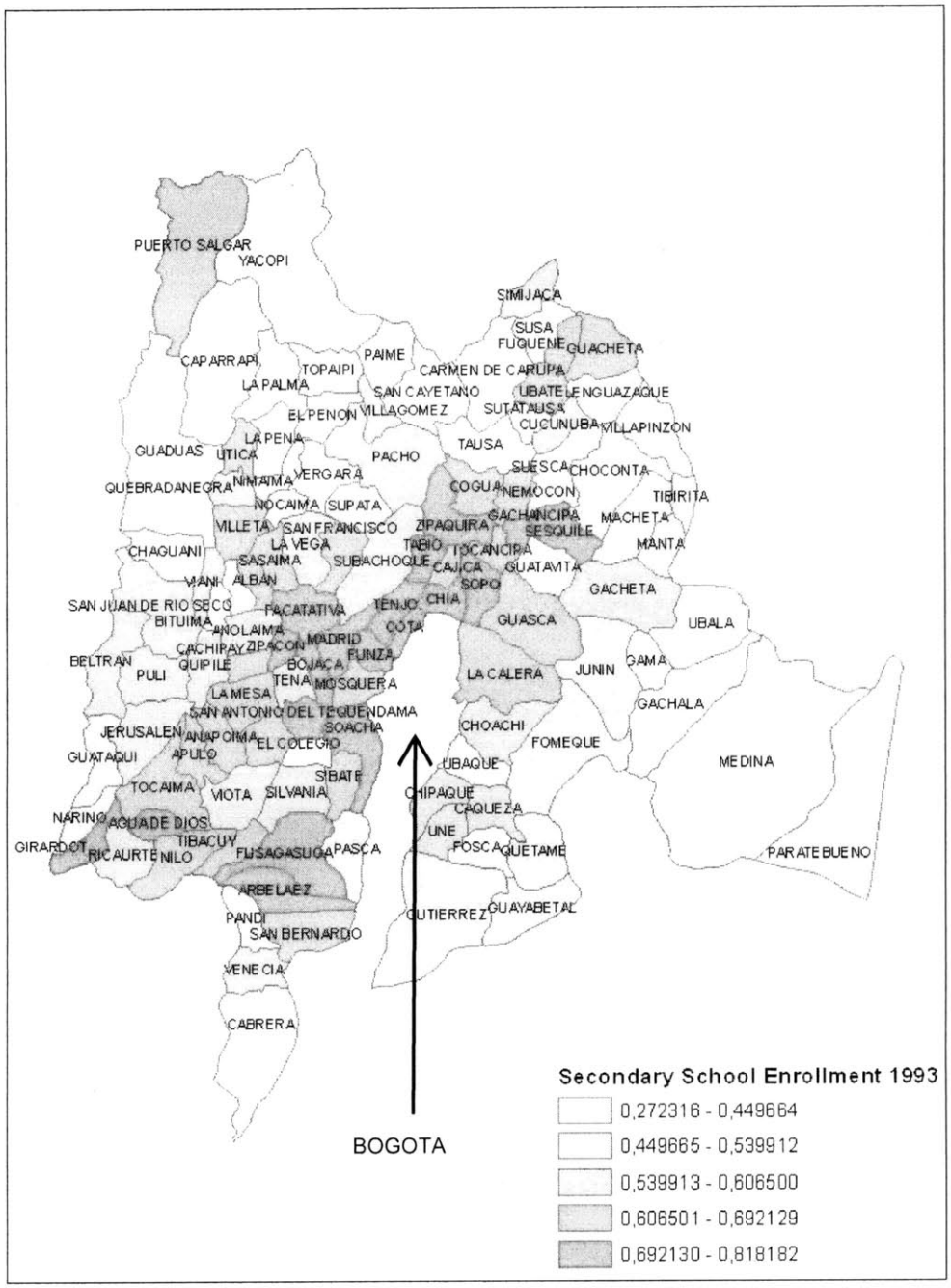
Land gini is the average gini coefficient for 1879 and 1890 constructed from the *catastros*.

Figure 6
Political Concentration Index in Cundinamarca



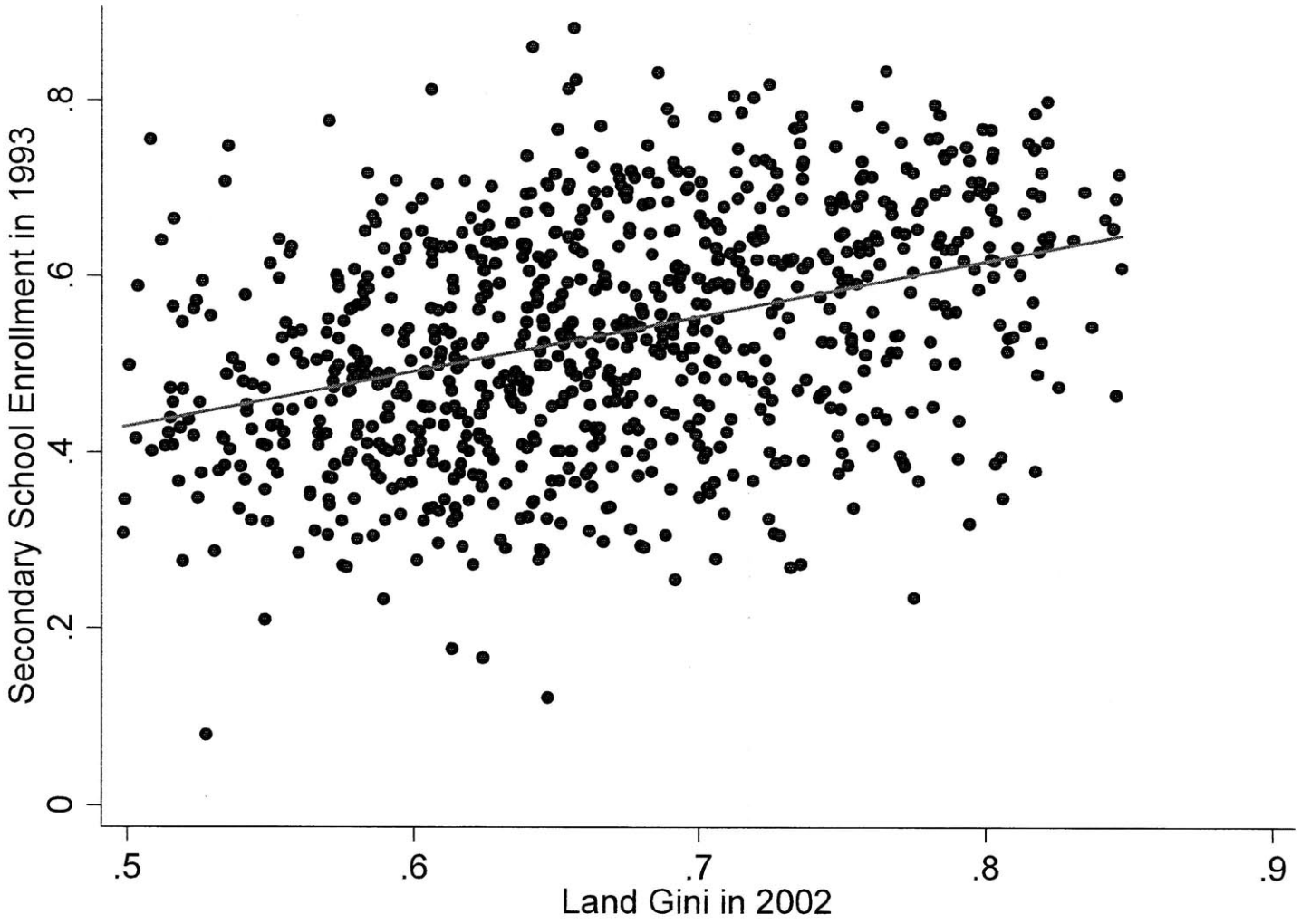
Political Concentration Index defined as the negative of the number of different individuals in power between 1875 and 1895, over the number of mayor appointments for which data is available.

Figure 7
Secondary School Enrollment in Cundinamarca



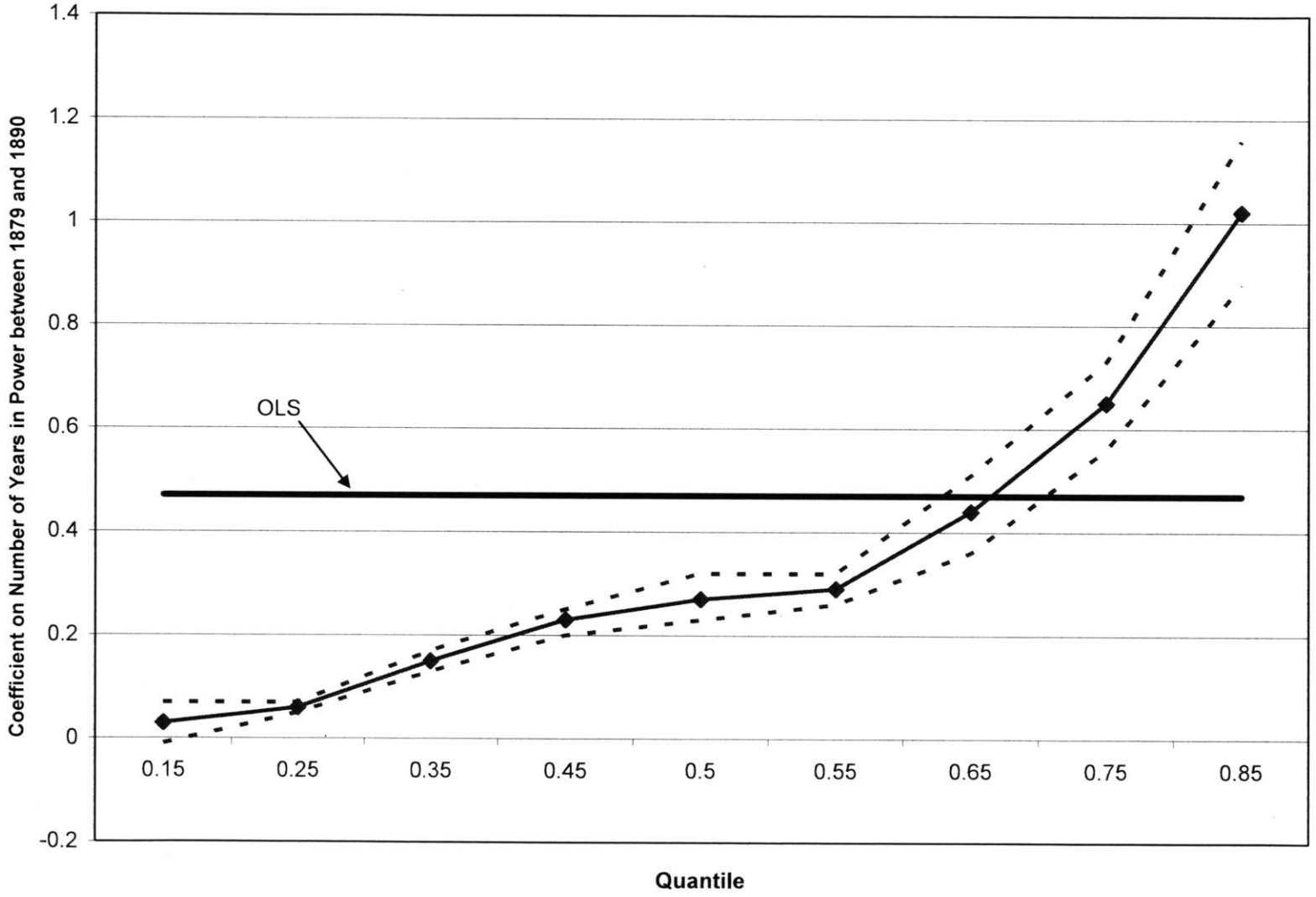
Secondary School Enrollment constructed from the 1993 Census as fraction of kids between 12 and 18 years old attending school.

Figure 8
Contemporary Land Inequality and Secondary School Enrollment in Colombia



Land gini constructed from the 2002 IGAC *catastros*. Secondary School Enrollment constructed from the 1993 Census as fraction of kids between 12 and 18 years old attending school.

Figure 9
Land Accumulation and Political Power: Quantile Regressions



Bibliography

Abramowitz, Alan (1991) "Incumbency, Campaign Spending and the Decline of Competition in U.S. Elections", *Journal of Politics*, 53(1): 34-56.

Acemoglu, Daron (2007a) "Oligarchic vs. Democratic Societies," forthcoming *Journal of the European Economic Association.*

Acemoglu, Daron (2007b) "Modelling Inefficient Institutions," in Richard Blundell, Whitney Newey and Torsten Persson eds. *Advances in Economics and Econometrics, 3 Volumes, Ninth World Congress of the Econometric Society*, New York: Cambridge University Press.

Acemoglu, Daron and James A. Robinson (2000a) "Political Losers as a Barrier to Economic Development," *American Economic Review*, 90, 126-130.

Acemoglu, Daron and James A. Robinson (2000b) "Why Did the West Extend the Franchise? Democracy, Inequality and Growth in Historical Perspective," *Quarterly Journal of Economics*, 115, 1167-1199.

Acemoglu, Daron and James A. Robinson (2006a) "Economic Backwardness in Political Perspective," *American Political Science Review*, 100, 115-131.

Acemoglu, Daron and James A. Robinson (2008) "Persistence of Power, Elites, and Institutions", *American Economic Review*, 98(1), March.

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2005) "Institutions as a Fundamental Cause of Development." In *Handbook of Economic Growth*, ed. Philippe Aghion and Steven Durlauf, 386–472. Amsterdam, Holland: Elsevier.

Acemoglu, Daron, Maria Angelica Bautista, Pablo Querubin and James A. Robinson (2008) "Economic and Political Inequality in Development: The Case of Cun-

dinamarca, Colombia", in *Institutions and Economic Performance*, Ed. Elhanan Helpman, Cambridge, MA: Harvard University Press.

Acemoglu, Daron, Simon Johnson, Pablo Querubin and James A. Robinson (2008) "When Does Policy Reform Work? The Case of Central Bank Independence", *Brookings Papers on Economic Activity*, Spring.

Acemoglu, Daron, James A. Robinson and Thierry Verdier (2004) "Kleptocracy and Divide and Rule: A Theory of Personal Rule," *Journal of the European Economic Association*, 2, 162-192.

Acemoglu, Daron, Davide Ticchi and Andrea Vindigni (2006) "Emergence and Persistence of Inefficient States" NBER Working Paper #12748.

Aghion, Philippe, Eva Caroli, and Cecilia Garcia-Peñalosa (1999) "Inequality and Economic Growth: The Perspective of the New Growth Theories," *Journal of Economic Literature*, 37, 1615-1660.

Alesina, Alberto and Roberto Perotti (1996) "Income Distribution, Political Instability and Investment," *European Economic Review*, 40, 1203-1225.

Alesina, Alberto and Dani Rodrik (1994) "Distributive Politics and Economic Growth," *Quarterly Journal of Economics*, 109, 465-490.

Angrist, Joshua and Jorn-Steffen Pischke (2009) *Mostly Harmless Econometrics*, Princeton University Press, Princeton, NJ.

Ansolabehere, Stephen and James M. Snyder Jr. (2004) "Using Term Limits to Estimate Incumbency Advantages when Officeholders Retire Strategically", *Legislative Studies Quarterly*, 29(4): 487-515.

Ansolabehere, Stephen, Mark Hansen, Shigeo Hirano and James M. Snyder Jr. (2007) "The Incumbency Advantage in U.S. Primary Elections", *Electoral Studies*, 26(3): 660-668.

Asako, Yasushi, Takeshi Iida, Tetsuya Matsubayashi and Michiko Ueda (2010) "Political Dynasties and Democratic Representation:Theory and Evidence from Japan", mimeo.

Banerjee, Abhijit and Esther Duflo (2003) "Inequality and Growth: What can the Data Say?" *Journal of Economic Growth*, 8, 267-299.

Banerjee, Abhijit and Andrew F. Newman (1993) "Occupational Choice and the

Process of Development," *Journal of Political Economy*, 101, 274-298.

Banerjee, Abhijit and Rohini Somanathan (2006) "Political Economy of Public Goods: Some Evidence from India," Unpublished, MIT Department of Economics.

Barro, Robert (1973) "The Control of Politicians: An Economic Model", *Public Choice*, 14:19-42.

Barro, Robert J. (1997) *The Determinants of Economic Growth: A Cross-Country Empirical Study*, Cambridge: MIT Press.

Barro, Robert J. (2000) "Inequality and Growth in a Panel of Countries," *Journal of Economic Growth*, 5, 5-32.

Bateman, Fred, and James D. Foust (1974) "A Sample of Rural Households Selected From the 1860 Manuscript Censuses," *Agricultural History*, 48, 75-93.

Bates, Robert H. (1981) *Markets and States in Tropical Africa*, Berkeley: University of California Press.

Benabou, Roland (1996) "Inequality and Growth," *NBER Macroeconomics Annual*, 11-73.

Benabou, Roland (2000) "Unequal Societies: Income Distribution and the Social Contract," *American Economic Review*, 90, 96-129.

Benjamin, Gerald and Michael Malbin (1992) *Limiting Legislative Terms*, Congressional Quarterly Press, Washington D.C.

Benjamin, Dwayne, Loren Brandt and John Giles (2006) "Inequality and Growth in Rural China: Does Higher Inequality Impede Growth?" Unpublished, Department of Economics, University of Toronto.

Bennedsen, Morten, Kasper Meisner-Nielsen, Francisco Perez-Gonzales and Daniel Wolfenzon (2007) "Inside the Family Firm: the Role of Families in Succession Decisions and Performance", *Quarterly Journal of Economics*, May, Vol. 122, No. 2: 647–691.

Bergquist, Charles W. (1978) *Coffee and conflict in Colombia, 1886-1910*, Durham: Duke University Press.

Bernard, Olivier and Fabio Zambrano (1993) *Ciudad y Territorio: El Proceso de Poblamiento en Colombia*, Bogotá: Academia de Historia de Bogotá.

Bertrand, Marianne, Francis Kramarz, Antoinette Schoar and David Thesmar

(2006) "Politically Connected CEOs and Economic Outcomes: Evidence from France," Unpublished.

Besley, Timothy and Anne Case (1995) "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits", *Quarterly Journal of Economics*, 110(3): 769-798.

Bond, Philip, William Barndt, John Gerring and Carola Moreno (2005) "Democracy and Growth: A Historical Perspective," *World Politics*, 57, 323-364.

Bourguignon, François and Thierry Verdier (2000) "Oligarchy, democracy, inequality and growth," *Journal of Development Economics*, 62, 285-313.

Bushnell, David (1971) "Voter Participation in the Colombian Election of 1856," *Hispanic American Historical Review*, 51, 237-249.

Bushnell, David (1993) *The Making of Modern Colombia: A Nation in Spite of Itself*, Berkeley: University of California Press.

Cain, Bruce, John Hanley and Thad Kousser (2006), "Term Limits: A Recipe for More Competition?" in *The Marketplace for Democracy*, Michael Mc.Donald and John Samples Eds, Brookings Institution Press, Washington D.C.

Camacho Roldán, Salvador (1892) "Catastro del Estado de Cundinamarca, 1868," in *Escritos Varios de Salvador Camacho Roldán*, Volume 1, Bogotá: Librería Colombiana.

Camp, Roderick (1982) "Family Relationships in Mexican Politics: A Preliminary View", *The Journal of Politics*, 44(3), 848-62.

Carlos, Clarita (1998) *History of electoral reforms in the Philippines : pre-Spanish to 1998*, Makati City, Konrad Adenauer Foundation.

Central Intelligence Agency (2010) The World Factbook, www.cia.gov/library/ publications/the-world-factbook/, (Accessed on 6/20/2010).

Christie, Keith H. (1978) "Antioqeño Colonization in Western Colombia: A Reappraisal," *Hispanic American Historical Review*, 58, 260-283.

Christie, Keith H. (1979) "Gamonalismo in Colombia: An Historical Overview," *North/South: Canadian Journal of Latin American Studies*, 4, 42-59.

Christie, Keith H. (1986) *Oligarcas, campesinos y política en Colombia: aspectos de la historia socio-política de la frontera antioqueña*, Bogotá: Universidad Nacional de Colombia.

Coatsworth, John H. (1998) "Economic and Institutional Trajectories in Nineteenth Century Latin America," in John H. Coatsworth and Alan M. Taylor eds. *Latin America and the World Economy since 1900*, Cambridge: Harvard University Press.

Coatsworth, John H. (2005) "Structures, Endowments, and Institutions in the Economic History of Latin America," *Latin American Research Review*, 40, 126-144.

Colmenares, Germán (1973) *Historia Economica y Social de Colombia, 1537-1719*, Bogotá: Tercer Mundo Editores.

Coronel, Sheila, Yvonne T. Chua, Luz Rimban and Booma B. Cruz (2007) *The Rulemakers: How the Wealthy and the well-born dominate Congress*, Philippine Center for Investigative Journalism, Quezon City.

Cruz Santos, Abel (1965) *Economía y hacienda pública*, 2 Volumes, Bogotá: Ediciones Lerner.

Cullinane, Michael (2003) *Ilustrado Politics*, Quezon City, Ateneo de Manila Press.

Dal Bo, Ernesto, Pedro Dal Bo and Jason Snyder (2009) "Political Dynasties", *Review of Economic Studies*, 76(1), January.

Daniel, Kermit and John R. Lott Jr. (1997) "Term Limits and Electoral Competitiveness: Evidence from California's State Legislative Races", *Public Choice*, 90: 165-84.

De Dios, Emmanuel (2007) "Local Politics and Local Economy" in The Dynamics of Regional Development: The Philippines in East Asia, Arsenio Balisacan and Hal Hill (eds.), Quezon City, Ateneo de Manila Press.

De Dios, Emmanuel and Paul Hutchcroft (2003) "Political Economy" in *The Philippine Economy: Development, Policies and Challenges*, Arsenio Balisacan and Hal Hill (eds.), Quezon City, Ateneo de Manila Press.

Deas, Malcolm (1971) "Algunas Notas sobre la Historia del Caciquismo en Colombia," *Revista del Occidente*, 127, 118-140.

Deas, Malcolm (1977) "A Colombian Coffee Estate: Santa Bárbara, Cundinamarca, 1870-1912," in Kenneth Duncan and Ian Rutledge eds. *Land and labour in Latin America : essays on the development of agrarian capitalism in the nineteenth and twentieth centuries*, New York: Cambridge University Press.

Deas, Malcolm (1993) *Del poder y la gramática: y otros ensayos sobre historia, política*

y literatura colombianas, Santafé de Bogotá: Tercer Mundo Editores.

Delpar, Helen (1981) *Red against blue: the Liberal Party in Colombian politics, 1863-1899*, Tuscaloosa: University of Alabama Press.

Dick, Andrew and John R. Lott Jr. (1993) "Reconciling voters' behavior with legislative term limits", *Journal of Public Economics*, 50: 1-14.

Engerman, Stanley L. and Kenneth L. Sokoloff (1997) "Factor Endowments, Institutions, and Differential Growth Paths among New World Economies," in Stephen Haber ed. *How Latin America Fell Behind*, Stanford: Stanford University Press.

Engerman, Stanley L. and Kenneth L. Sokoloff (2005) "The Evolution of Suffrage Institutions in the New World," *Journal of Economic History*, 65, 891-921.

Erikson, Robert (1971) "The Advantage of Incumbency in Congressional Elections, *Polity*, 3(3): 395-405.

Easterly, William (2007) "Inequality does cause underdevelopment: Insights from a New Instrument," forthcoming, *Journal of Development Economics.*

Estado de Cundinamarca (1859) *Los doce Códigos del Estado de Cundinamarca*, Bogotá: Echeverría.

Estado de Cundinamarca (1889) *Ordenanzas del departamento de Cundinamarca: expedidas por la asamblea de 1888 y códigos, de policía y político municipal seguidos de algunas leyes nacionales y decretos del poder ejecutivo*, Bogotá: Imprenta de la Luz, 1889.

Faccio, Mara (2006) "Politically Connected Firms," *American Economic Review*, 96, 369-386.

Ferraz, Claudio and Frederico Finan (2010) "Political Power Persistence and Economic Development: Evidence from Brazil's Regime Transition", mimeo.

Fisman, Raymond (2001) "Estimating the Value of Political Connections," *American Economic Review*, 91, 1095-1102.

Forbes, Kristen J. (2000) "A Reassessment of the Relationship between Inequality and Growth," *American Economic Review*, 90, 869-887.

Fowler, Linda (1992) "A Comment on Competition and Careers" in *Limiting Legislative Terms*, Gerald Benjamin and Michael Malbin Eds., Congressional Quaterly Press, Washington D.C.

Galor, Oded and Joseph Zeira (1993) "Income Distribution and Macroeconomics," *Review of Economic Studies*, 40, 35-52.

Galor, Oded, Omer Moav and Dietrich Vollrath (2006) Inequality in Land Ownership, the Emergence of Human Capital Promoting Institutions and the Great Divergence,"

Gelman, Andrew and Gary King (1990) "Estimating Incumbency Advantage Without Bias", *American Journal of Political Science*, 34: 1142-64.

Gilbert, Dennis L. (1977) *The oligarchy and the old regime in Peru*, Ithaca: Cornell University Press.

Glaeser, Edward (1997) "Self-Imposed Term Limits", *Public Choice*, 93: 389-394.

Glazer, Amihai and Martin Wattenberg (1996) "Promoting Legislative Work: A Case for Term Limits" in *Legislative Term Limits: Public Choice Perspective*, B. Grofman Ed., Kluwer Academic Publishers, Boston.

Gomez, Fernando (1969) "Análisis de los Censos de Población del Siglo XIX en Colombia," Tesis de Grado, Bogotá, Universidad de los Andes.

Grofman, Bernard and Neil Sutherland (1996) "The Effect of Term Limits when Competition is Endogenized" in *Legislative Term Limits: Public Choice Perspective*, B. Grofman Ed., Kluwer Academic Publishers, Boston.

Gutiérrez, Rufino (1920) *Monografías*, Bogotá: Imprenta nacional.

Gutierrez, Eric, Ildefonso Torrente and Noli Narca (1992) All in the Family: A Study of elites and power relation in the Philippines, Quezon City, Institute for Popular Democracy.

Hahn, Jinyong, Petra Todd, and Wilbert Van der Klaauw (2001) Identification and Estimation of Treatment Effects With a Regression Discontinuity Design, *Econometrica* 69(1), 201-9.

Hedman, Eva and John Sidel (2000) *Philippine politics and society in the twentieth century : colonial legacies, post-colonial trajectories*, London, Routledge.

Hutchcroft, Paul (1998) *Booty Capitalism: The politics of banking in the Philippines*, Quezon City, Ateneo de Manila Press.

Imbens, Guido and Thomas Lemieux (2007) "Regression Discontinuity Designs: A Guide to Practice", *Journal of Econometrics*, 142(2), pp.615-635

Jiménez, Michael F. (1985) "The limits of export capitalism: economic structure, class and politics in a Colombian coffee municipality, 1900-1930," Unpublished Ph.D. Dissertation, Department of History, Harvard University.

Johnson, Lyman L. (1994) "The Distribution of Wealth in Nineteenth Century Buenos Aires Province," in Kenneth J. Adrien and Lyman L. Johnson eds. *The Political Economy of Spanish America in the Age of Revolution*, Albuquerque: University of New Mexico Press.

Johnson, Simon and Todd Mitton (2003) "Cronyism and capital controls: Evidence from Malaysia," *Journal of Financial Economics*, 67, 351-382.

Jones, Alice H. (1980) *Wealth of a nation to be: the American colonies on the eve of the Revolution*, New York: Columbia University Press.

Khwaja, Asim I. and Atif Mian (2005) "Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market," *Quarterly Journal of Economics*, 120, 1371-1411.

Koenker, Roger and Gilbert Bassett (1978) "Regression Quantiles", *Econometrica*, 46, 33-50.

Lande, Carl (1965) *Leaders, Factions and Parties: The Structure of Philippine Politics*, Yale University South East Asian Studies, New Haven , CT.

Lee, David (2007) "Randomized Experiments from Non-random Selection in U.S. House Elections", *Journal of Econometrics*, 142(2), pp.675-697.

LeGrand, Catherine (1986) *Frontier expansion and peasant protest in Colombia, 1850-1936*, Albuquerque: University of New Mexico Press.

Levitt, Steven and Catherine Wolfram (1997) "Decomposing the Sources of Incumbency Advantage in the U.S. House, *Legislative Studies Quarterly*, 22(1): 45-60.

Lizzeri, Alessandro and Nicola Persico (2004) "Why Did the Elites Extend the Suffrage? Democracy and the Scope of Government, With an Application to Britain's 'Age of Reform," *Quarterly Journal of Economics*, 119, 707-765.

Lopez, Edward (2003) "Term Limits: Causes and Consequences", *Public Choice*, 114(1/2): 1-56.

Lott, John R. Jr (1986) "Brand Names and Barriers to Entry in Political Markets", *Public Choice*, 51: 87-92.

Margo, Robert A. (1990) *Race and schooling in the South,1880-1950: an economic history*, Chicago: University of Chicago Press.

Mazzuca, Sebastián and James A. Robinson (2006) "Political Conflict and Power-Sharing in the origins of Modern Colombia," NBER Working Paper #12099.

McCoy, Alfred (1994) *An Anarchy of Families*, Madison, WI, University of Wisconsin Press.

McCreery, David (1994) *Rural Guatemala, 1760-1940*, Stanford: Stanford University Press.

McGreevey, William P. (1970) *An Economic History of Colombia*, New York: Cambridge University Press.

Melo, Jorge Orlando (1996) *Historia de Colombia: La Dominación Española*, Bogotá: Biblioteca Familiar.

Meltzer, Allan H. and Scott F. Richard (1981) "A Rational Theory of the Size of Government," *Journal of Political Economy*, 89, 914-927.

Michels, Robert (1911) *Political Parties.* New York: The Free Press.

Mosca, Gaetano (1939) *The Ruling Class.* New York, NY: McGraw-Hill.

Murphy, Kevin J., Andrei Shleifer and Robert W. Vishny (1989) "Income Distribution, Market Size and Industrialization," *Quarterly Journal of Economics*, 104, 537-564.

National Archives of the Philippines (1973) *Catalogo Alfabetico de Apellidos*, Manila.

Nugent, Jeffery B. and James A. Robinson (2002) "Are Endowments Fate?" CEPR Discussion Paper #3206.

Nunn, Nathan (2007) "Slavery, Inequality, and Economic Development in the Americas: an Examination of the Engerman-Sokoloff Hypothesis," mimeo, University of British Columbia.

Owen, Norman (1971) *Compadre Colonialism : Philippine-American relations, 1898-1946*, Manila, Solidaridad Pub. House.

Paige, Jeffrey M. (1997) *Coffee and Power: Revolution and the Rise of Democracy in Central America*, Harvard University Press; Cambridge.

Palacios, Marco (1980) *Coffee in Colombia, 1850-1970: an economic, social, and political history*, New York: Cambridge University Press.

Palacios, Marco (1981) "La Propriedad Agraria en Cundinamarca, 1880-1970: Un Es-

bozo sobre la Sociedad de las Tierras Templadas," Unpublished, El Colegio de México.

Pardo Umaña, Camilo (1946) *Las Haciendas de la Sabana*, Editorial Kelly: Bogotá.

Pareto, Vilfredo (1968 [1901]) *The Rise and Fall of Elites.* New Brunswick, NJ. Transaction Publishers.

Park, James W. (1985) *Rafael Núñez and the politics of Colombian regionalism, 1863-1886*, Baton Rouge: Louisiana State University Press.

Parsons, James J. (1949) *Antioqueño colonization in western Colombia*, Berkeley: University of California Press.

Perez-Gonzales, Francisco (2006) "Inherited Control and Peformance", *American Economic Review*, December, Vol. 96, No. 5, pp. 1559-1588.

Perotti, Roberto (1996) "Growth, Income Distribution, and Democracy: What the Data Say," *Journal of Economic Growth*, 1, 149-187.

Persson, Torsten and Guido Tabellini (1994) "Is Inequality Harmful for Growth?" *American Economic Review*, 84, 600-621.

Persson, Torsten and Guido Tabellini (2006) "Democratic capital: The nexus of political and economic change," NBER Working Paper #12175.

Posada-Carbó, Eduardo (1997) "The Limits of Power: Elections under the Conservative Hegemony in Colombia, 1886-1930," *Hispanic American Historical Review*, 77, 245-279.

Querubin, Pablo (2010a) "Family and Politics: Dynastic Persistence in the Philippines", mimeo, Massachusetts Institute of Technology.

Querubin, Pablo (2010b) "Political Reform and Elite Persistence: Term Limits and Political Dynasties in the Philippines", mimeo, Massachusetts Institute of Technology.

Ramcharan, Rodney (2006) "Inequality and Redistribution: Evidence from US Counties and States, 1890-1930," Unpublished, International Monetary Fund.

Rivas, Medardo (1946) *Los trabajadores de tierra caliente*, Bogotá: Ministerio de Educación de Colombia.

Robinson, James A. and Miguel Urrutia eds. (2007) *Economía Colombiana del Siglo XX: Un Análisis Cuantitativo*, Bogotá and México D.F.: Fondo de Cultura Económica.

Rossi, Martin (2010) "The Causes of Political Dynasties in Democratic Countries", Universidad de San Andres, mimeo.

Safford, Frank R. (1972) "Social Aspects of Politics in Nineteenth Century Spanish America: New Grenada, 1825-1850," *Journal of Social History*, 5, 344-370.

Safford, Frank R. (1974) "Bases for Political Alignment in Early Independent Spanish America," in Richard Graham ed. *New Approaches to Latin American History*, Austin: University of Texas Press.

Safford, Frank R. and Marco Palacios (2001) *Colombia: Fragmented land, Divided society*, New York: Oxford University Press.

Schaefer, Donald and Mark Schmitz (1985) "The Parker-Gallman Sample and Wealth Distributions for the Antebellum South: A Comment," *Explorations in Economic History*, 22, 220-226.

Schmitz, Mark and Donald Schaefer (1985) "Using Manuscript Census Samples to Interpret Antebellum Southern Agriculture," *Journal of Interdisciplinary History*, 17, 399-414.

Schwartz, Stuart B. (1996) "The Landed Elite," in Louisa Schell Hoberman and Susan Migden Socolow eds. *The Countryside in Colonial Latin America*, Albuquerque: University of New Mexico Press.

Sidel, John (1999) *Capital, Coercion and Crime: Bossism in the Philippines*, Stanford, CA, Stanford University Press.

Simbulan, Dante (2005) *The Modern Principalia*, Quezon City, University of the Philippines Press.

Smart, Michael and Daniel Sturm (2006) "Term Limits and Electoral Accountability", Working Paper, University of Toronto.

Solberg, Carl E. (1969) "A Discriminatory Frontier Land Policy: Chile, 1870-1914," *The Americas*, 26, 115-133.

Stein Stanley J. and Barbara H. Stein (1970) *The Colonial Heritage of Latin America*, New York: Oxford University Press.

Steinberg, David (2000) *The Philippines: A Singular and a Plural Place*, Boulder, Westview Press.

Stone, Samuel Z. (1990) *The Heritage of the Conquistadors: ruling classes in Central America from the Conquest to the Sandinistas*, Lincoln: University of Nebraska Press.

Tabarrok, Alexander (1994) "A Survey, Critique and New Defense of Term Limits",

The CATO Journal, 14(2), Fall.

Tabarrok, Alexander (1996) "Term Limits and Political Conflict" in *Legislative Term Limits: Public Choice Perspective*, B. Grofman Ed., Kluwer Academic Publishers, Boston.

Uribe-Uran, Victor (2000) *Honorable Lives: Lawyers, Families and Politics in Colombia, 1780-1850*, Pittsburgh: University of Pittsburgh Press.

Villamarin, Juan A. (1975) "Haciendas en la Sabana de Bogotá, Colombia, en la Época Colonial: 1539-1810," in Enrique Florescano ed. *Haciendas, Latifundios y Plantaciones en América Latina*, Mexico: Siglo Veintiuno Editores.

Wright, Gavin (1986) *Old South, New South*, New York: Basic Books.